

Health Profession Opportunity Grants (HPOG 1.0) Impact Study: Three-Year Impacts Report

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Overview

In 2010, the Administration for Children and Families (ACF) within the U.S. Department of Health and Human Services awarded the first round of five-year Health Profession Opportunity Grants (HPOG 1.0) to 32 organizations in 23 states; five were tribal organizations. The purpose of the HPOG Program is to provide education and training to Temporary Assistance for Needy Families (TANF) recipients and other low-income individuals for occupations in the healthcare field that pay well and are expected to either experience labor shortages or be in high demand. HPOG 1.0 grantees designed and implemented programs to provide eligible participants with education, occupational training, and support and employment services to help them train for and find jobs in a variety of healthcare professions.

The ACF Office of Planning, Research, and Evaluation supports a multipronged research and evaluation strategy to assess the success of the HPOG Program. To assess its effectiveness, the first round of local HPOG programs was evaluated using an experimental design in which eligible program applicants were assigned at random to a “treatment” group that could access the program or a “control” group that could not. To compute the program’s impact, the outcomes for each group were compared. This document reports on the impacts that arose about three years after random assignment. It reports an overall average impact across the diverse HPOG 1.0 programs, as well as impacts for selected subgroups of study participants.

Research Questions

- What impacts do the locally implemented HPOG programs as a group have on the outcomes of participants and their families?
- To what extent do those impacts vary across selected subpopulations?
- To what extent do the education and employment experiences of HPOG participants over time suggest that they are following a career pathway?

Purpose

The HPOG 1.0 Impact Study is making an important contribution to the field’s collective knowledge about sector-based and career pathways programs. Most other evaluations focus on a single program usually selected for its promise, and the results of those evaluations are generalizable to programs that are similar to the one evaluated. In contrast, the HPOG 1.0 Impact Study considers a large collection of diverse, locally implemented programs, all operating in their own way under broad ACF guidelines. The benefit of this approach is that it helps to assess whether the general HPOG model—across many implementations of it—is effective in achieving its goals.

Key Findings

According to a follow-up survey (initiated about three years after randomization) and national administrative data (available through the 13th follow-up quarter), relative to the control group:

- 13 percentage points *more* of the HPOG treatment group had completed training (one of the study’s two confirmatory outcomes); and

- quarterly earnings (the other confirmatory outcome) among the HPOG treatment group were *no different* in the 12th-13th quarters after random assignment (both groups earned approximately \$5,000 on average per quarter).

In addition to these two prioritized outcomes, the three-year analysis also found that, relative to the control group:

- 1 percent *more* of the HPOG treatment group self-assessed as “confident” in their career knowledge;
- 1 percentage point *more* of the HPOG treatment group was employed;
- 12 percentage points *more* of the HPOG treatment group was employed in healthcare;
- 2 percentage points *more* of the HPOG treatment group was employed at a job offering health insurance;
- 7 percentage points *more* of the HPOG treatment group experienced career progress, a measure that combines educational progress with earnings growth; and
- 3 percentage points *fewer* of the HPOG treatment group reported financial hardship, as indicated by generally not having enough money to make ends meet at the end of the month over the prior year.

These findings are all statistically significantly different from zero.

Methods

The HPOG 1.0 Impact Study used an experimental evaluation design to assess the impacts of 42 local HPOG programs in 23 of 32 first-round grantees nationwide. By randomizing eligible applicants to treatment and control groups, the evaluation provides rigorous evidence to inform the adult training field about sector-based and career pathways programs. The impact analysis used administrative data from the National Directory of New Hires (NDNH) from the first 13 quarters after study participants were randomized and data from a follow-up survey initiated at about three years after they were randomized.

Executive Summary

The Health Profession Opportunity Grants (HPOG) Program provides education and training to Temporary Assistance for Needy Families (TANF) recipients and other low-income individuals for occupations in the healthcare field that pay well and are expected to either experience labor shortages or be in high demand.¹ The Administration for Children and Families (ACF) within the U.S. Department of Health and Human Services awarded the first round of HPOG grants (HPOG 1.0) to 32 grantees to run programs that met the following criteria:

- Target skills and competencies demanded by the healthcare industry.
- Support “career pathways”; that is, offer clearly defined routes that allow participants to build a career by advancing through successively higher levels of education and training, exiting into employment at multiple possible points.
- Result in employer- or industry-recognized, portable education credentials (e.g., certificates or degrees) and professional certifications and licenses (e.g., a credential awarded by a Registered Apprenticeship program).
- Combine support services with education and occupational training to help participants overcome barriers to succeeding in training and finding and keeping a job.
- Provide training at times and locations that are easily accessible to targeted populations.

ACF’s Office of Planning, Research, and Evaluation (OPRE) supports a multipronged research and evaluation strategy to assess the success of the HPOG Program. To assess its effectiveness, ACF contracted with Abt Associates to evaluate HPOG’s impact.

Evaluation design. The evaluation used an experimental design in which eligible program applicants were assigned at random to a “treatment” group that could access the local HPOG program or a “control” group that could not, and then compared their outcomes. Of 32 grantees awarded funding, this HPOG 1.0 Impact Study included 23 grantees that operated 42 local programs nationwide.² By having applicants randomized to treatment and control groups, the evaluation can provide strong evidence to assess the effectiveness of HPOG in pursuing its dual policy goals of providing training opportunities for TANF recipients and other low-income individuals and of providing a skilled workforce to meet the needs of the healthcare sector.

Data sources. The study’s impact analysis used data from the National Directory of New Hires covering the first 13 quarters after study participants were randomized, plus data from a follow-up survey of study participants initiated three years after they were randomized.

Research questions. The study’s motivating research questions are:

¹ Authority for these demonstrations is included in the Affordable Care Act (ACA), Public Law 111-148, 124 Stat. 119, March 23, 2010, sect. 5507(a), “Demonstration Projects to Provide Low-Income Individuals with Opportunities for Education, Training, and Career Advancement to Address Health Professions Workforce Needs,” adding sect. 2008(a) to the Social Security Act, 42 U.S.C. 1397g(a).

² By “local program,” we mean a unique set of services, training courses, and personnel; a single grantee may operate one or more local programs.

- What impacts do the locally implemented HPOG programs as a group have on the outcomes of participants and their families?
- To what extent do those impacts vary across selected subpopulations?
- To what extent do the education and employment experiences of HPOG participants over time suggest that they are following a career pathway?

Major Finding

As of the three-year follow-up, **more HPOG participants had completed occupational training than would have without HPOG, but this impact did not translate into greater earnings.** These two measures—educational progress and quarterly earnings after three years—were pre-selected as the *confirmatory outcomes* for the three-year impact analysis, or the outcomes for which a favorable impact signals HPOG’s success in meeting its goals.³

Key Impact Findings

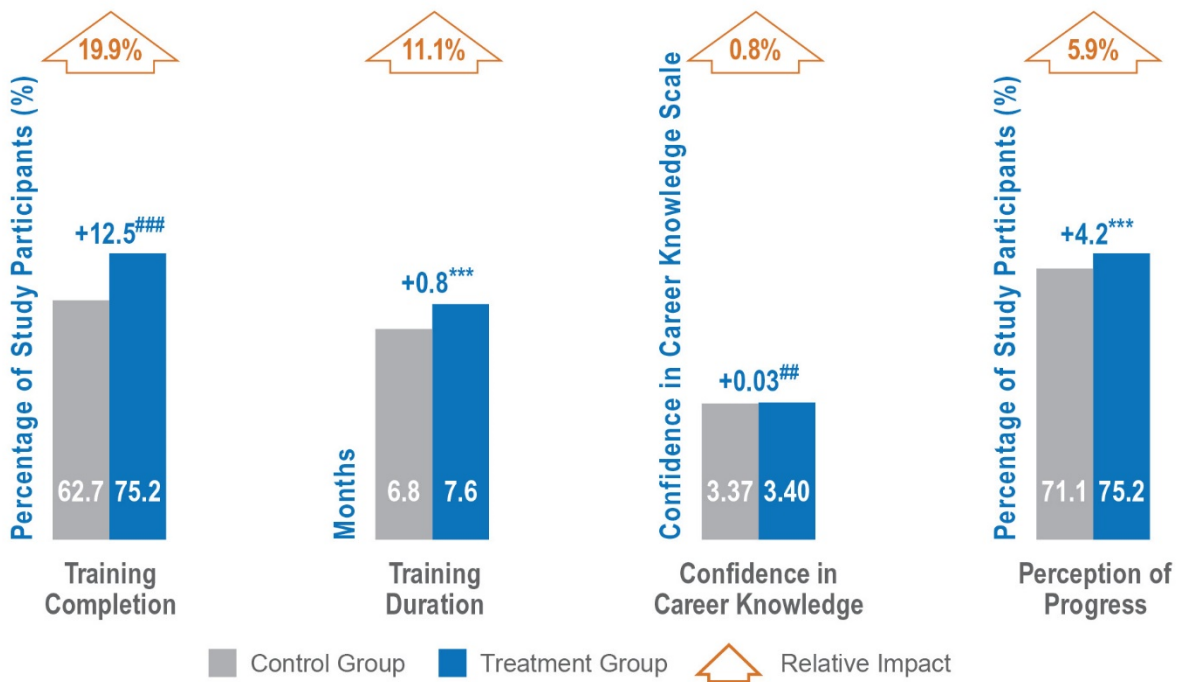
We summarize key findings for three main groups of outcomes: educational progress, labor market, and general well-being. In addition to these overall impacts, we also summarize some major subgroup impacts. The full report includes findings on additional, exploratory outcomes in each domain.

Educational Progress Impacts

- **HPOG increased training completion, training duration, and participants’ self-assessed confidence in career knowledge and perception of progress toward long-term education goals.**

As shown in Exhibit ES.1, just over 75 percent of the treatment group had completed training, compared to nearly 63 percent of the control group, as of the three-year follow-up, representing roughly a 13 percentage point impact. Large shares of both the treatment and control groups were working (43 percent) and were already in school (26 percent) when they applied to HPOG, suggesting the entire sample was relatively well motivated to succeed in training. This motivation is evident in the levels of the outcomes for both groups.

³ These outcomes are described as confirmatory in both the study’s Analysis Plan (Litwok et al. 2018) and the study’s registration page (available here: <https://osf.io/z986c/>).

Exhibit ES.1: Educational Progress Outcomes and Impacts

Notes: Statistical significance levels for one-sided tests are indicated with hashtags, as follows: ### = 1 percent; ## = 5 percent; # = 10 percent. Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent. Sources: Three-year survey.

Although the average duration of training was relatively short, HPOG increased the duration of training as reported through the three-year survey: the treatment group's average time in training was about 7½ months, about one month longer than those in the control group. There is wide variation across participants in the length of trainings pursued and completed.

As shown in Exhibit ES.1, HPOG also had impacts on some less tangible aspects of educational progress. The treatment group's self-assessed confidence in their career knowledge was slightly higher than that of the control group's; their perception of their progress toward long-term education goals was higher as well.

Labor Market Impacts

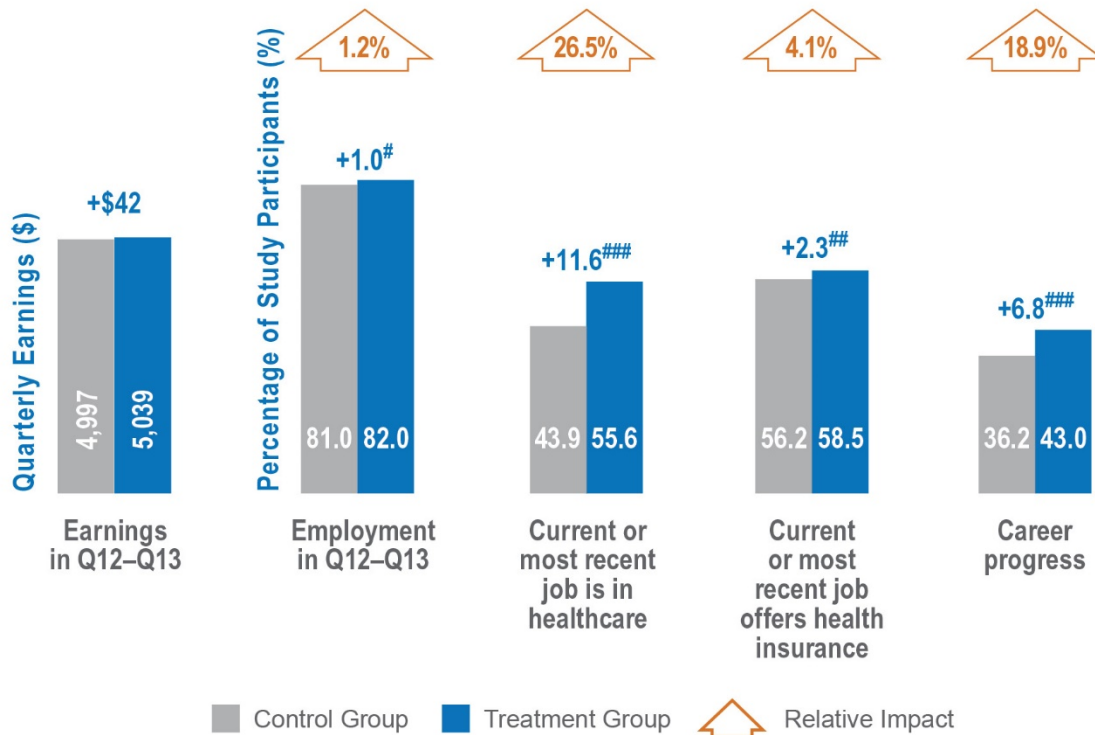
- **HPOG had no detectable impacts on quarterly earnings in the 12th-13th quarters after random assignment, but had impacts on employment rates, employment in healthcare, job quality, and career progress.**

Administrative earnings data show that both the treatment and control groups earned an average of approximately \$5,000 over the 12th-13th quarters after random assignment, as shown in Exhibit ES.2. In that same time frame, about 82 percent of the treatment group was employed, an improvement of 1 percentage point relative to the control group.

HPOG increased healthcare employment and improved employment conditions. According to the three-year survey, 56 percent of the treatment group was employed in healthcare, compared to 44 percent of the control group. The treatment group was also more likely to work at a job

that offered health insurance. Finally, HPOG increased career progress, which we define as a combination of training completion and earnings growth. Three years after random assignment 43 percent of the treatment group had made career progress compared to 36 percent of the control group.

Exhibit ES.2: Labor Market Outcomes and Impacts



Notes: Career progress reflects a combination of training completion and earnings growth (see Chapter 4 for details).

Statistical significance levels for one-sided tests are indicated with hashtags, as follows: ### = 1 percent; ## = 5 percent; # = 10 percent.

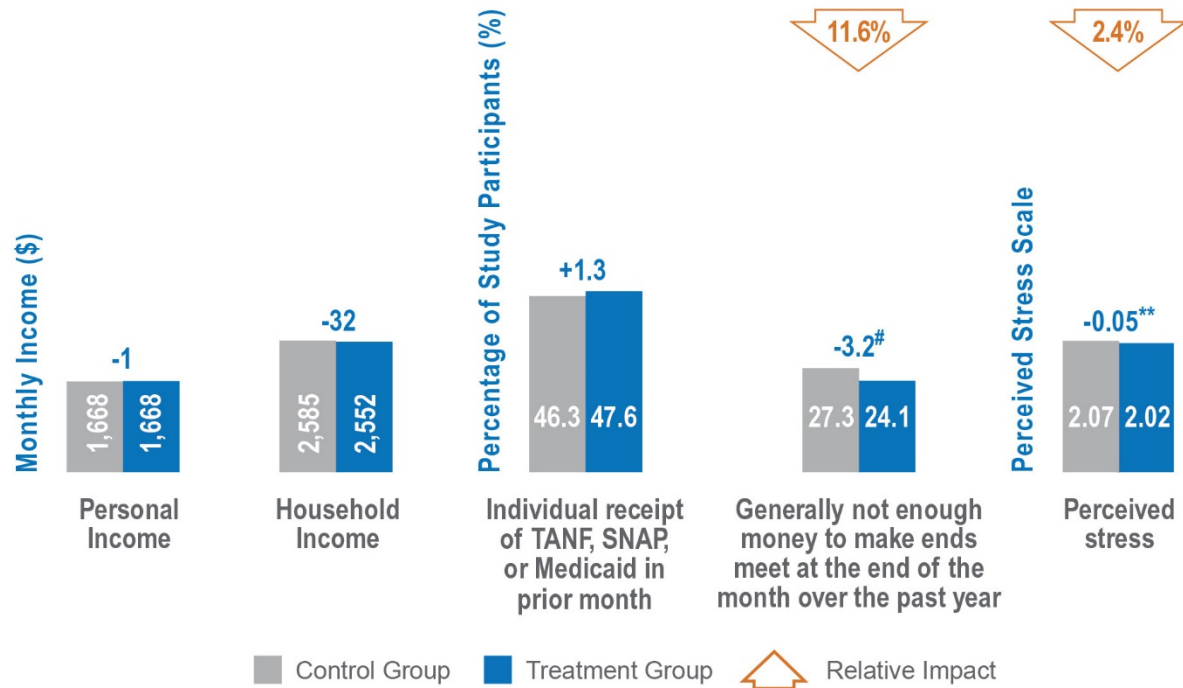
Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Sources: Three-year survey; National Directory of New Hires.

Well-being Impacts

- **HPOG did not decrease individual public assistance use. However, HPOG reduced self-reported financial hardship and perceived stress.**

Exhibit ES.3 shows that HPOG did not decrease individual receipt of TANF, SNAP, or Medicaid in the prior month. HPOG also had no impact on the treatment group's personal or household income. That said, HPOG reduced self-reported financial hardship: about one quarter of the treatment group reported that in the prior year they "generally did not have enough money to make ends meet at the end of the month," which was about 3 percentage points lower than in the control group. The treatment group also reported a slightly lower stress level.

Exhibit ES.3: General Well-Being Outcomes and Impacts

Notes: Statistical significance levels for one-sided tests are indicated with hashtags, as follows: ### = 1 percent; ## = 5 percent; # = 10 percent. Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Sources: Three-year survey.

Major Subgroup Impacts

- **HPOG increased educational progress across all major subgroups analyzed. Earnings gains accrued only to those who came into the program with some postsecondary education or more.**

This study is large enough to potentially provide insights into impacts on a wide range of subgroups, which we defined by demographics, certain “policy-relevant” characteristics, and baseline receipt of public assistance. These analyses provide evidence that educational progress gains are pervasive: all of the subgroups analyzed experienced educational progress impacts, and some had relatively greater impacts. For example, among the subgroups defined by certain policy-relevant traits, those that one might associate with their being less prepared for a program such as HPOG—not enrolled in training at baseline, with a high school education or less, with one or more barriers to school or work, and not employed—showed improvements in their educational progress that were larger than their more prepared counterparts. In addition, those who received SNAP or WIC at baseline experienced larger educational progress gains than those who were not receiving assistance at baseline.

In comparison, most subgroups’ earnings impacts were no different from the overall study sample’s earnings impacts, with one exception: those who entered with at least some postsecondary education experienced earnings gains that were larger than those who entered with less than a high school degree.

The study also examined impacts on parents and their dependent children. Parents experienced relatively greater educational progress gains than non-parents (though both groups improved).

Beyond that, parents experienced impacts similar to the full sample, and there were no detectable impacts—either favorable or unfavorable—on their children's development or well-being. This Executive Summary mentions subgroup results only for educational progress and earnings. All subgroup results—including on many more outcomes—are detailed in Chapters 6 and 7 and Appendices F and G.

Additional Descriptive Findings

Beyond the analysis of three-year impacts, some descriptive analyses may have implications for future research or program practice.

- **A large share of HPOG participants (84 percent) participated in short-term trainings, and those trainings associate with relatively low-paying jobs. The remaining share (16 percent) participated in longer-term trainings that associated with relatively high-paying jobs.**

The most common of the short-term trainings were for Nursing Aides, Orderlies, and Attendants—occupations with limited earnings potential. Long-term trainings were for Registered Nurse, Licensed Practical Nurse, or Licensed Vocational Nurse. To improve future earnings, people might need to return to complete additional trainings in order to move onto the next—and better-paying—rung of healthcare occupations, as the career pathways framework intends.

- **Less than 10 percent of HPOG treatment group respondents returned to complete a second training, whether they first enrolled in a short-term or long-term training.**

Analysis of the patterns of employment versus training considered the extent to which HPOG participants moved from training to employment to a second training. Very few treatment group members returned for a second training within this follow-up period. This pattern—which represents assumptions of the career pathways framework—may be so infrequently observed either for programmatic reasons (the local HPOG programs simply did not engage much of the sample into subsequent trainings) or because not enough time has passed to observe people returning to training. Future research will explore this further.

Conclusion and Implications

The HPOG 1.0 Impact Study is making an important contribution to the field's collective knowledge about sector-based and career pathways programs. Most other notable evaluations consider one or a handful of programs. These are usually programs that have shown promise, and the results of those evaluations are only generalizable to other programs that are similar to the one evaluated. In contrast, the HPOG 1.0 Impact Study considers the average impact over a large collection of diverse programs, all operating in their own way under broad ACF guidelines. This means that the evaluation assesses whether the general HPOG model—across many implementations of it—is effective.

As of this three-year follow-up, HPOG Program impacts on educational progress have not resulted in earnings impacts. Longer-term earnings gains seem dependent on whether those currently in low-paying healthcare jobs would return for additional training. If they do, then they may be able to advance along a healthcare career ladder to better jobs. If the treatment group

does not return to training and remains in the largely low-paying healthcare jobs that they are in three years after random assignment, then future earnings gains are less likely. The planned six-year follow-up should be in a position to determine which of these possibilities reflects the HPOG experience.

ACF's HPOG Research and Evaluation Portfolio

ACF's Office of Planning, Research, and Evaluation (OPRE) is using a multipronged research and evaluation strategy to assess the implementation, outcomes, and impacts of the Health Profession Opportunity Grants (HPOG) Program. The program supports demonstration projects that provide Temporary Assistance for Needy Families (TANF) recipients and other low-income individuals with the opportunity to obtain education and training for occupations in the healthcare field that pay well and are expected to either experience labor shortages or be in high demand.

HPOG First Round (HPOG 1.0)

In 2010, ACF awarded the first round of five-year HPOG grants (HPOG 1.0) to 32 organizations in 23 states; five were tribal organizations. Non-tribal grantee programs served 36,624 participants over the five years.

HPOG Implementation and Outcomes Research

National Implementation Evaluation (NIE). The research team conducted implementation and outcomes research for the 27 non-tribal grantees operating 49 programs in 19 states. The evaluation explored how the HPOG 1.0 programs are implemented across grantees (Descriptive Implementation Study), what individual-level outcomes and outputs occur (Outcome Study), and how HPOG influences service delivery systems (Systems Change Analysis).

- January 2018 final report: <https://www.acf.hhs.gov/opre/resource/final-report-national-implementation-evaluation-of-the-first-round-health-profession-opportunity-grants-hpog-10>

HPOG 1.0 Impact Study

Of the 27 first-round non-tribal grantees, 23 participated in an experimental study to assess impacts of HPOG 1.0 (the remaining four grantees participated in other ACF-funded research). The 23 study grantees implemented 42 programs in 92 locations across 19 states. Beginning about 2½ years after grants are awarded, local programs randomly assigned eligible applicants to a "treatment" group that could access HPOG or a "control" group that could not. The study randomized 13,802 participants. Among treatment group members, some were offered the standard local HPOG program and some an "enhanced" version where some study participants were offered access to emergency assistance, non-cash incentives, or facilitated peer support groups. All study participants completed a baseline survey at enrollment.

Short-Term Impacts. About 15-18 months after being randomly assigned, all study participants were invited to complete a follow-up survey. The research team assessed short-term outcomes using survey data, administrative data on employment and earnings, implementation research results for the 23 grantees from NIE, and site visits conducted specifically for the Impact Study.

- May 2018 *HPOG 1.0 Impact Study Interim Report: Program Implementation and Short-Term Impacts* (updated as of November 2019): <https://www.acf.hhs.gov/opre/resource/health-profession-opportunity-grants-hpog-10-impact-study-interim-report-implementation-short-term-impacts>

Longer Term Impacts. ACF is supporting additional follow-up for HPOG 1.0 in two longer-term studies approximately three years and six years after random assignment.

- Three years (this report): <https://www.acf.hhs.gov/opre/research/project/career-pathways-intermediate-outcomes-cpio-study>
- Six years: <https://www.acf.hhs.gov/opre/research/project/career-pathways-long-term-outcomes-study>

For More Information

See Appendix A for more information on HPOG research and how it is positioned in ACF's career pathways research portfolio.

OPRE's HPOG Research and Evaluation portfolio page: <https://www.acf.hhs.gov/opre/research/project/evaluation-portfolio-for-the-health-profession-opportunity-grants-hpog>

Career Pathways website: <http://www.career-pathways.org/>

Terminology Used in This Report

Terms Related to HPOG

Funding Opportunity Announcement (FOA): the government-issued call for applications that outlined terms for funded grantees and programmatic expectations for their programs.

HPOG Program: a term used to refer to the national Health Profession Opportunity Grants initiative, including all grantees and programs.

HPOG grantee: an entity receiving HPOG funding that is responsible for funding and overseeing one or more local programs.

Local HPOG program: a unique set of services, training courses, and personnel. Many grantees fund and operate one program; some fund multiple programs.

Terms Related to the HPOG Evaluation

HPOG Impact Study: an experimental study designed to assess the impact of the HPOG Program on participants across 23 grantees.

- **HPOG-only grantees:** 20 of the 32 HPOG grantees that were not otherwise participating in a study funded under ACF's HPOG Research and Evaluation Portfolio. We refer to programs within these grantees as **HPOG-only programs**.
- **HPOG/PACE grantees:** three of the 32 HPOG grantees that were also evaluated as part of ACF's Pathways for Advancing Careers and Education (PACE) study. We refer to programs within these grantees as **HPOG/PACE programs**. Three additional programs are funded by HPOG-only grantees but are evaluated as part of the PACE study. We also refer to these as **HPOG/PACE programs**.

HPOG logic model: a conceptual framework for describing how program inputs and activities are associated with anticipated education, training, and labor market outcomes.

Study participants: the label for all prospective HPOG participants who enrolled in the study, regardless of the experimental group (treatment or control) to which they were randomly assigned.

- **Treatment group members:** The study participants who were offered access to the HPOG Program as part of study participation.
- **Control group members:** The study participants who were not offered access to the HPOG Program as part of study participation.

Outcomes: The specific measures of interest that the HPOG Program aims to influence. The Impact Study defined three types of outcomes:

- **Confirmatory outcomes:** main indicators of the extent to which the program is making progress toward its goals.
- **Secondary outcomes:** additional important outcomes identified in the HPOG logic model.
- **Exploratory outcomes:** additional outcomes of interest, including those that are (1) affected by the program but not identified in the logic model; and (2) alternative specifications of confirmatory and secondary outcomes.

Outcome domain: A category of related outcomes.

Terminology Used in This Report (continued)

Terms Related to Data Collection

Baseline data: refers to information collected from participants at study enrollment.

Performance Reporting System (PRS): the management information system used by all HPOG grantees to document program activities and accomplishments of individual program participants and to track program results against program goals. Data collected in the PRS was used to construct baseline measures for participants at HPOG-only grantees.

Basic Information Form (BIF): the baseline data collection instruments used by the HPOG/PACE grantees. BIF data were used to construct baseline measures for participants at HPOG/PACE grantees.

National Directory of New Hires (NDNH): a national database of quarterly earnings data, collected from states and the federal government. NDNH is used to construct key earnings and employment outcomes.

Three-year survey: a survey of HPOG participants conducted approximately three years after study enrollment. Data from the three-year survey were used to construct key educational progress and well-being outcomes.

General Terms

Temporary Assistance for Needy Families (TANF): a federal program designed to help families achieve self-sufficiency by providing cash assistance and related supports.

Supplemental Nutrition Assistance Program (SNAP): a federal assistance program that provides nutrition benefits to supplement needy families' food budgets so they can purchase healthy food and move towards self-sufficiency.

Special Supplemental Nutrition Program for Women, Infants, and Children (WIC): a federal assistance program that provides food assistance, healthcare referrals, and nutrition education to low-income pregnant women, new mothers, and infants and children up to age five at nutritional risk.

Medicaid: a federal and state program that provides health insurance to low-income people, families and children, pregnant women, the elderly, and people with disabilities.

Full-time equivalent (FTE) months of enrollment: a measure that summarizes the number of months an individual was enrolled in education or training, based on reported enrollment in the three-year survey. One month of full-time enrollment is equal to 1 FTE month; one month of part-time enrollment is equal to 0.5 FTE months.

1. Introduction

The Health Profession Opportunity Grants (HPOG) Program responds to both the challenges that low-income, low-skilled individuals have in securing family-supporting jobs and the increasing demand for qualified healthcare professionals.

In September 2010, the Administration for Children and Families (ACF) within the U.S. Department of Health and Human Services (HHS) awarded a first round of HPOG grants (HPOG 1.0) to 32 grantees in 23 states. Grants were awarded to organizations to provide education and training to Temporary Assistance for Needy Families (TANF) recipients and other low-income individuals for occupations in the healthcare field that pay well and are expected either to experience labor shortages or to be in high demand.⁴ Grantees included government agencies, community-based organizations, postsecondary educational institutions, and five tribal-affiliated organizations.⁵

To assess the effectiveness of the HPOG Program among the non-tribal grantees, ACF contracted with Abt Associates to conduct the HPOG 1.0 Impact Study. In a May 2018 report (Peck et al. 2018), the Impact Study analyzed participants' outcomes measured about 15-18 months after their enrollment in HPOG. **This Three-Year Impacts Report describes the HPOG treatment group members' experiences and impacts three years after study enrollment.** A future report will describe impacts six years after enrollment.

The HPOG 1.0 Impact Study is one part of a multipronged research and evaluation strategy ACF's Office of Planning, Research, and Evaluation (OPRE) uses to assess the success of the HPOG Program in achieving its goals. The "ACF's HPOG Research and Evaluation Portfolio" textbox on page 8 summarizes this study, its reporting, and related research activities. See Appendix A for a description of OPRE's full portfolio of career pathways evaluations, including other research on the HPOG Program.

This introductory chapter provides the context for this Three-Year Impacts Report. Section 1.1 describes the Funding Opportunity Announcement (FOA) to which HPOG grantees responded, and the textbox that follows describes the program itself in brief. Section 1.2 describes the HPOG 1.0 Impact Study, including the history and design of the evaluation, data sources, and how HPOG differed from what was otherwise available in the community. Section 1.3 describes the characteristics of the study sample. Finally, Section 1.4 closes the chapter with a roadmap to the remainder of the report.

1.1 Career Pathways Framework

The HPOG Program uses the *career pathways framework* of postsecondary occupational training and education to address the challenge of preparing nontraditional student populations who vary in their readiness for training or employment. Programs that operate within a career

⁴ Authority for these demonstrations is included in the Affordable Care Act (ACA), Public Law 111-148, 124 Stat. 119, March 23, 2010, sect. 5507(a), "Demonstration Projects to Provide Low-Income Individuals with Opportunities for Education, Training, and Career Advancement to Address Health Professions Workforce Needs," adding sect. 2008(a) to the Social Security Act, 42 U.S.C. 1397g(a).

⁵ A separate study describes implementation and outcomes of the five Tribal HPOG grantee programs (Meit et al. 2016).

pathways framework generally offer a series of education and training steps within in-demand sectors and industries, combined with support services that aim to lead to better job prospects and labor market outcomes for participants.

As outlined in the HPOG FOA (HHS/ACF/OFA 2010), the HPOG model aims to:

- Target skills and competencies demanded by the healthcare industry.
- Support career pathways (i.e., offer clearly defined routes that allow participants to build a career by advancing through successively higher levels of education and training, exiting into employment at multiple possible points).
- Result in employer- or industry-recognized, portable education credentials (e.g., certificates or degrees) and professional certifications and licenses (e.g., a credential awarded by a Registered Apprenticeship program).
- Combine support services with education and occupational training to help participants overcome barriers to succeeding in training and finding and keeping a job.
- Provide training at times and locations that are easily accessible to targeted populations.

Using discretion within the parameters of the FOA, HPOG grantees designed programs that were diverse in context, design, and implementation. The 42 programs included in the HPOG 1.0 Impact Study were operated by 23 grantees located in 19 states, with varying labor market conditions, healthcare labor market structures, and existing community resources. Grantees were of various institutional types, including workforce development agencies, postsecondary educational institutions, and nonprofit agencies. Each of the grantees made choices about eligibility requirements, pre-training activities, healthcare occupational training courses, and support services. All of these factors led to potentially different HPOG local program participant characteristics, experiences, outcomes, and impacts.

Local HPOG Programs in Brief

Local HPOG programs varied in the extent to which they incorporated features of the career pathways framework. The National Implementation Evaluation (NIE) and the HPOG 1.0 Short-Term Impacts reports provide substantial descriptions of the national HPOG Program itself, including details on variation across local HPOG programs. Sub-sections in this chapter provide a broad description of what the HPOG model offered and how that differed from what was otherwise available in the community.

Local HPOG programs enrolled TANF recipients and other low-income individuals with a range of academic and social skills and work experience. For those who did not meet the skill requirements for coursework in healthcare, or who needed to improve the social skills expected for employment in healthcare, programs provided training in basic academic and “soft” skills. For those participants, as well as for others already prepared for occupational training in healthcare, local HPOG programs offered training for a variety of healthcare occupations. Some courses were relatively short, usually leading to entry-level jobs in the health professions, such as Nurses’ Aide or Phlebotomist. Other courses, such as those for Licensed Practical or Registered Nurse, were longer-term, intending to lead to higher-wage jobs.

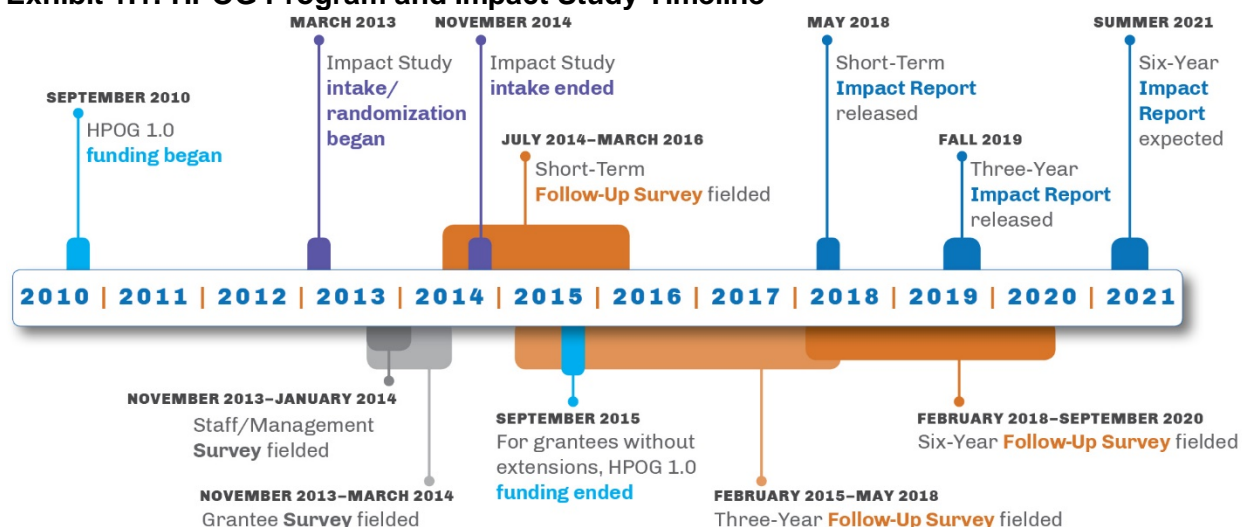
A distinctive feature of local HPOG programs was the relatively wide range of available support services intended to help participants deal with potential financial and personal challenges to program enrollment and completion. The major types of supports included case management; academic supports, such as tutoring; personal and family supports, such as assistance with transportation or childcare costs; financial assistance for training and equipment; and employment assistance.

1.2 HPOG 1.0 Impact Study

Research on HPOG informs a field of practitioners and policymakers eager for information on what is most effective from sector-based, career pathways interventions.

As shown in Exhibit 1.1, HPOG funding began in September 2010. All of the HPOG 1.0 grantees were expected to be part of some evaluation research, whether through an ACF-sponsored university partnership research study, tribal evaluation, or the HPOG Impact Study. Those non-tribal grantees collecting individual-level data as part of another evaluation were not required to participate in the Impact Study; the remaining 23 grantees were.⁶ Those 23 grantees implemented 42 distinct local HPOG programs in 92 locations across 19 states.

Exhibit 1.1: HPOG Program and Impact Study Timeline



Notes: Of the 23 HPOG 1.0 grantees in the HPOG 1.0 Impact Study, 18 received a no-cost extension; the timing of extensions varied by grantee, but all HPOG 1.0 funding ended by May 31, 2016.

1.2.1 Evaluation Design

The HPOG Impact Study uses an experimental evaluation design to assess impacts of HPOG 1.0. As shown in Exhibit 1.1, study intake began about 2½ years after grants were awarded. Beginning in March 2013, local programs randomly assigned eligible applicants to a “treatment” group that could access HPOG or to a “control” group that could not. In total, the study randomized 13,802 participants.⁷ This large sample was possible because the FOA required all HPOG 1.0 grantees to participate in one or more components of ACF’s career pathways research portfolio.

⁶ All of the non-tribal HPOG grantees are also part of the National Implementation Evaluation (NIE) of HPOG, and they were required to participate in the Impact Study, with a small number of exceptions. In three cases, incumbent worker programs were exempted from the Impact Study because of challenges with treatment-control group spillover and contamination potential. In addition, one program was not included in the Impact Study because it did not enroll any new participants after random assignment began.

⁷ Eighty-six participants withdrew from the study sample after random assignment (27 treatment and 59 control). As a result, the analytic sample size for this report is 13,716.

In 20 of the 23 grantees (which we refer to as “HPOG-only”), for each participant randomized into the control group, two participants were randomized into the treatment group (a ratio of 1:2).⁸ The remaining three grantees also participated in ACF’s Pathways for Advancing Careers and Education (PACE) Study (see Appendix A), an evaluation of career pathways programs not limited to healthcare.⁹ In those three grantees (which we refer to as “HPOG/PACE”) the randomization ratio was 1:1.

Unlike other recent research that singles out “promising” programs, the HPOG 1.0 Impact Study considers an entire funding stream. The resulting “blended” average assesses whether the general HPOG model and the government’s overall investment in that model—across its many local implementations—is effective in achieving its goals.

1.2.2 Data Sources

The HPOG Impact Study relies on data from varied sources, for measuring the study participants’ characteristics, their outcomes, and impacts of the HPOG Program itself. Those data sources are as follows:

- Management information system, called the Performance Reporting System (PRS), which was used by all local HPOG programs to collect program data;
- HPOG baseline survey, which collected data from HPOG study participants at intake (supplemental to the PRS baseline data), including a household roster;
- PACE Basic Information Form (BIF), which collected baseline information from study participants in the HPOG/PACE programs;
- Short-term participant follow-up surveys from the HPOG and PACE Studies, initiated about 15 months after randomization and completed on average 18 months after randomization;
- Three-year participant follow-up survey from the HPOG and PACE Studies, (hereafter referred to as the “three-year survey”), initiated 36 months after randomization and completed on average 40 months after randomization;¹⁰ and
- Employment and earnings data from the National Directory of New Hires (NDNH), covering study participants from up to eight quarters prior to their randomization through at least 13 quarters following it.

The baseline and NDNH administrative data are available for the full sample. The three-year survey had a 73 percent response rate, with 75 percent of those in the treatment group and 70 percent of those in the control group responding. The survey covers 10,027 of the 13,716

⁸ This randomization ratio was implemented mainly for program administration purposes, both to reduce the need for programs to over-recruit and to support programs’ cooperation with the evaluation.

⁹ As part of the PACE study each of these grantees are evaluated individually. An additional program, the Carerras en Salud program at Instituto del Progreso Latino, which implemented one of the Workforce Investment Board of Will County’s five local HPOG programs, received HPOG funding and is included in this study but is also evaluated separately under PACE. Short-term PACE reports are available on program-specific implementation and impact findings, and longer-term PACE reports will be available in the coming months.

¹⁰ The HPOG and PACE studies had slightly different follow-up survey instruments in the short-term. The three-year survey was the same for HPOG and PACE.

members of the study's analysis sample.¹¹ Additional details of the study sample covered in various data sources and how the evaluation handled missing data appear in Appendix B.

1.2.3 The Experimental Contrast

In a randomized evaluation such as the HPOG Impact Study, sample members possess statistically equivalent observed and unobserved baseline characteristics. Therefore, for impacts to arise, the program that the HPOG treatment group is offered needs to be meaningfully different from the opportunities available to the control group. This difference is referred to as the “experimental contrast.” Understanding how and to what degree treatment conditions differ from control conditions is critical to the interpretation of estimated impacts.

As discussed in the Impact Study's *Short-Term Impacts Report* (Peck et al. 2018), the major difference between opportunities available to the treatment group and those available to the control group was HPOG's richer support services. Most treatment group members had more financial assistance and support services available to them than did the control group members. The difference in training course offerings was qualitatively more modest. Most control group members had courses available to them that were similar in type, amount, and quality to the courses available to the treatment group members. In some communities, treatment and control group members may have enrolled in the same training courses.

1.3 Study Sample Characteristics

All local HPOG programs recruited and served TANF recipients and other low-income individuals. States vary in their eligibility requirements for TANF, and income eligibility limits were left to each grantee's discretion, with most set between 150 and 250 percent of the federal poverty level. Grantees sought to recruit applicants who could succeed in healthcare training and employment, given some support from the program. Entry requirements considered educational background and basic skills, and also screened for training suitability.

The local programs' eligibility criteria directly influenced the characteristics of the HPOG 1.0 Impact Study sample (presented in Exhibit 1.2). Most study participants were “nontraditional” postsecondary education students, averaging 32 years old. Most were not married (84 percent) and female (89 percent), with dependent children (63 percent). About a quarter of participants were already in school or training, and 43 percent were employed when they entered the study.

¹¹ A subset of respondents who did not answer questions about their education and employment history were “skipped out” of the three-year survey. As a result, some of the outcomes based on that survey data have a smaller sample size. We discuss our approach to addressing this in our discussion of missing data in Appendix B.

Exhibit 1.2: Characteristics of the Study Sample at Baseline

Notes: See Appendix B for a detailed description of data sources and rates of missing data.

Sources: HPOG Performance Reporting System (PRS) and PACE Basic Information Form (BIF)

Given the program's eligibility requirements for personal and work-related skills and motivation, the control group seemed likely to persevere in its desire to complete occupational education notwithstanding their exclusion from HPOG. These traits flag that the sample was relatively motivated in terms of school, training, and work. Because these traits describe the entire study sample—that is, both treatment and control group—they set a high bar for the HPOG Program to improve the treatment group's educational progress and earnings over the control group.

1.4 Organization of the Report

The remainder of the report proceeds as follows:

- **Chapter 2: The HPOG Program Logic Model and Early Impacts** describes the HPOG career pathways logic model, and how it shapes both the evaluation design and its results. We summarize the study's early impacts and state the three-year impact analysis's research questions.
- **Chapter 3: Impacts on Educational Progress** reports the overall impact of HPOG on the confirmatory outcome of *training completion* and on other educational outcomes.
- **Chapter 4: Impacts on Labor Market Outcomes** reports the overall impact of HPOG on the second confirmatory outcome of *earnings* (average in the 12th and 13th quarters after random assignment) and on other labor market outcomes.
- **Chapter 5: Impacts on General Well-Being** reports impacts on income, public assistance receipt, and economic and psychological well-being outcomes.
- **Chapter 6: Impacts on Subgroups** reports impacts on confirmatory and secondary outcomes for demographic, policy-relevant, and public assistance-defined subgroups.
- **Chapter 7: Impacts on Child Development & Well-Being** reports impacts on confirmatory, secondary, and selected exploratory outcomes for the subsample of study participants with dependent children.
- **Chapter 8: Patterns of Training & Employment in the HPOG Treatment Group** describes the education and employment experiences of HPOG treatment group members during the three years after enrollment in the program.
- **Chapter 9: Discussion & Conclusion** summarizes the three-year findings and their implications for policy and practice.
- **Appendix** material includes results of alternative specifications or additional details not included in the main body of the report. The following are provided in a separate volume:
 - Appendix A: HPOG as Part of OPRE's Career Pathways Research Portfolio
 - Appendix B: Sample Sizes and Missing Data
 - Appendix C: Supplemental Materials for Chapter 3
 - Appendix D: Supplemental Materials for Chapter 4
 - Appendix E: Supplemental Materials for Chapter 5
 - Appendix F: Supplemental Materials for Chapter 6
 - Appendix G: Supplemental Materials for Chapter 7
 - Appendix H: Supplemental Materials for Chapter 8

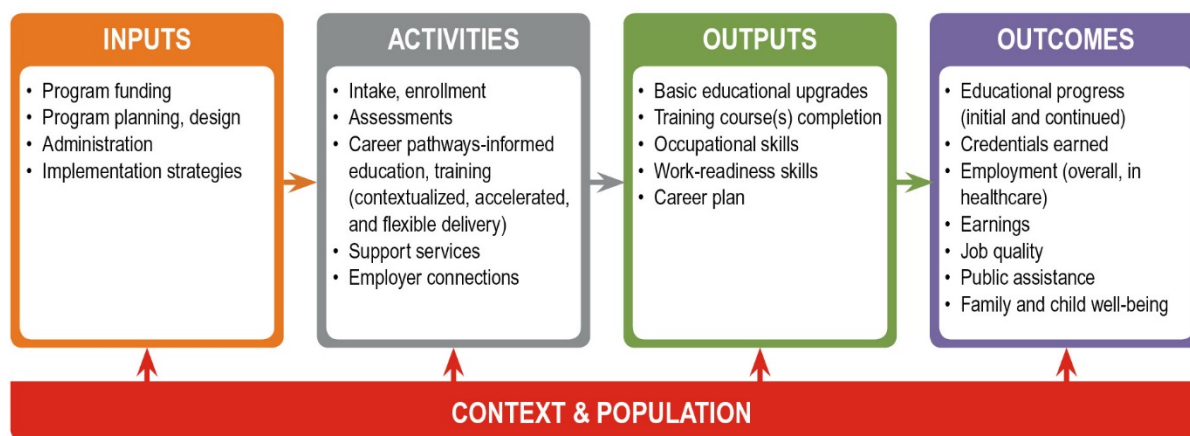
2. The HPOG Program Logic Model and Early Impacts

This chapter presents the HPOG Program logic model, summarizes the study's short-term impacts (as reported in the study's *Short-Term Impacts Report*), and then suggests implications for the three-year follow-up.

2.1 Logic Model

The study's streamlined logic model (Exhibit 2.1) shows how the program inputs, activities, and outputs can lead to expected outcomes.¹² In brief, the model suggests how program context, administration, and content associate with anticipated education, training, and other program activities. These are expected to lead to basic program outputs, which are intended to influence various outcomes.

Exhibit 2.1: HPOG Career Pathways Framework Logic Model (Streamlined)



The logic model hypothesizes a path from the HPOG Program through its outputs to short- and long-term outcomes. Specifically, program activities such as support services increase the likelihood that participants will complete the program. Program completion and associated credential attainment are expected to lead to labor market impacts. Favorable labor market impacts are expected to result in improved family and child well-being.

The logic model also recognizes that certain factors—including local context and population characteristics—are beyond the control of program designers and operators. For instance, local labor market conditions likely contribute to employment outcomes, and population characteristics likely influence the training programs and services provided. However, these factors are the same for both treatment and control group and so do not affect impact estimates.

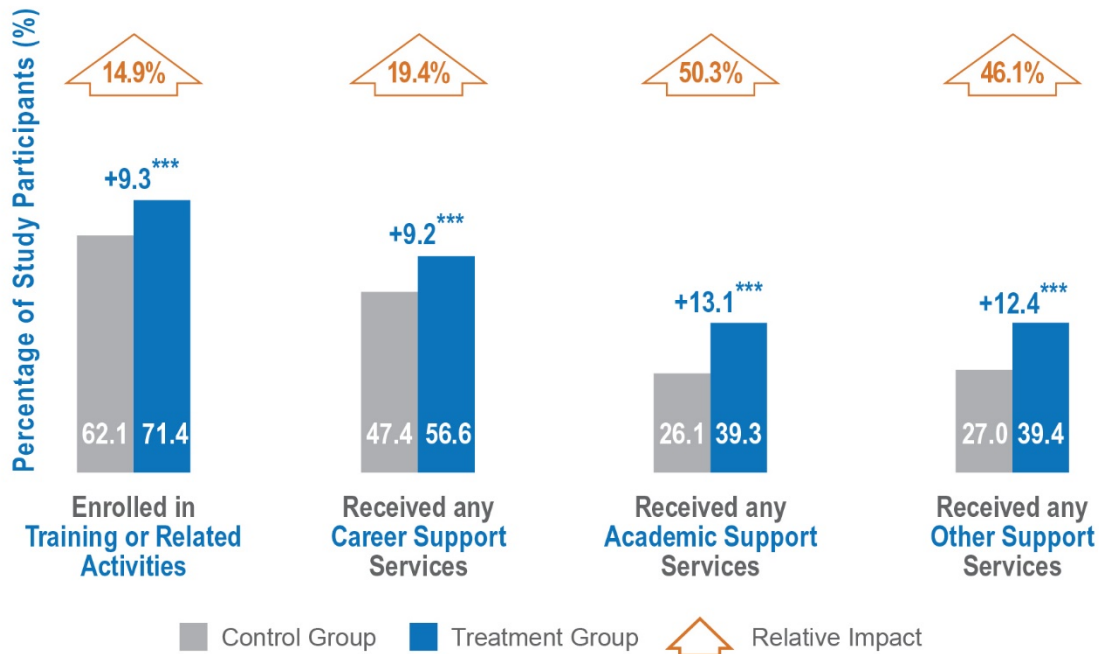
2.2 Short-Term Impacts

This section summarizes the key findings from the study's *Short-Term Impacts Report*, a snapshot taken at approximately 15-18 months after study enrollment.

¹² A more fully elaborated logic model appears in other project documents including the *Short-Term Impacts Report* (Peck et al. 2018) the, *Impact Study Design Report* (Peck et al. 2014), and elsewhere in implementation reports (e.g., Werner et al. 2018).

Access to HPOG increased study participants' enrollment in training: 71 percent of the treatment group and 62 percent of the control group enrolled in training as of the short-term follow-up, a difference that represents about a 15 percent improvement (Exhibit 2.2). This difference stemmed from greater enrollment in occupational classes (as opposed to credit classes, ESL classes, or basic skills classes; not shown).

Exhibit 2.2: Summary of HPOG Impacts on Participation in Training and Services at Short-Term Follow-Up



Notes: Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent. The more asterisks, the more likely the finding is not due to chance.

Sample Sizes and Sources:

Enrolled in Training or Related Activities, and Received Any Career Support Services: Treatment: 6,801. Control: 3,649. HPOG and PACE short-term follow-up surveys.

Received Any Academic Support Services, and Received Any Other Support Services: Treatment: 5,566. Control: 2,525. HPOG short-term follow-up survey.

The treatment group reported substantially greater levels of receipt of support services than the control group: about 9 percentage points more reported receiving academic support services, about 13 percentage points more reported receiving career support services, and about 12 percentage points more reported receiving other support services such as help arranging supports, counseling services, non-cash incentives, or emergency assistance services. These differences represent between about a 20 percent and 50 percent increase of services received by the treatment group relative to the control group.

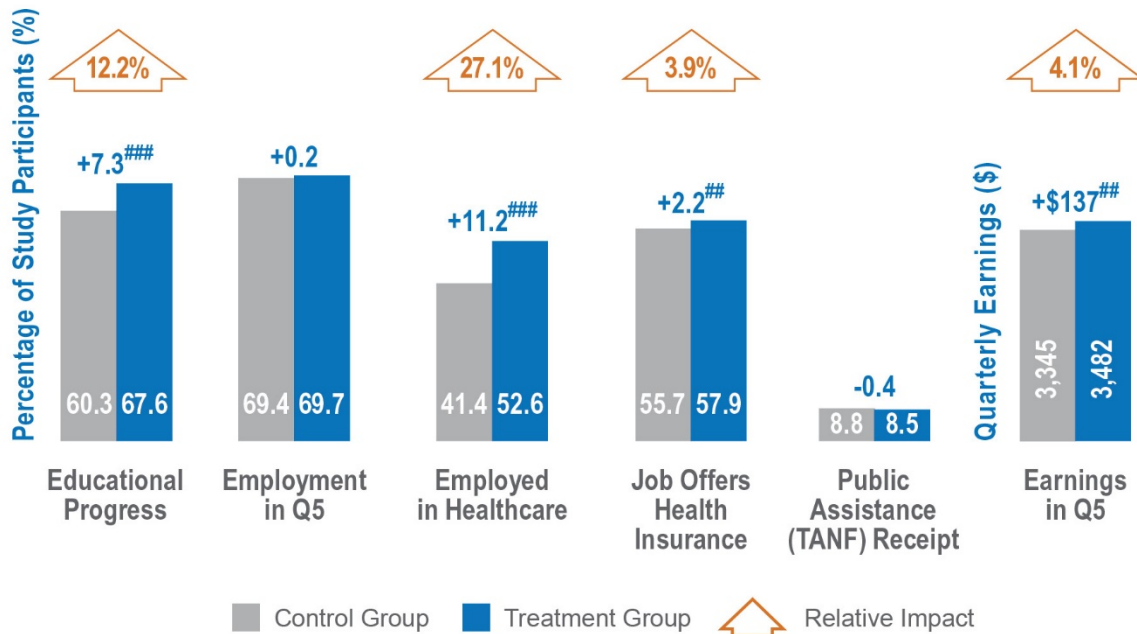
As shown in Exhibit 2.3, HPOG participants made statistically significant *educational progress*, the Impact Study's short-term confirmatory outcome.¹³ Educational progress is defined as ongoing enrollment in training or completion of training as of the short-term follow-up survey. About 60 percent of the control group versus 68 percent of the treatment group had made

¹³ Definitions of *confirmatory* and *secondary outcomes* appear in the textbox "Impact Analysis Data and Analytic Methods" on page 23.

educational progress. That 7 percentage point impact reflects a 12 percent improvement of the treatment group over the control group. Based on this finding, the *Short-Term Impacts Report* concluded that HPOG had achieved its short-term goal of increasing educational progress.

HPOG also had favorable impacts on secondary outcomes in the short-term, such as *healthcare sector employment*, *job quality* (defined as access to employer-sponsored health insurance), and *earnings*, as shown in Exhibit 2.3. Although there was no impact on employment in general, employment was channeled into healthcare: the treatment group's healthcare sector employment was 11 percentage points greater than that of the control group, reflecting a relatively large 27 percent increase. This increase in healthcare sector employment was an explicit goal of HPOG. Further, the treatment group earned \$137 more than the control group in the fifth follow-up quarter, a relatively small 4 percent increase.

Exhibit 2.3: Summary of HPOG Impacts on Confirmatory and Secondary Outcomes at Short-Term Follow-Up



Notes: Statistical significance levels for one-sided tests are indicated with hashtags, as follows: ### = 1 percent; ## = 5 percent; # = 10 percent. The more hashtags, the more likely the finding is not due to chance.

Sample Sizes and Sources:

Educational Progress, and Employed in Healthcare: Treatment: 6,801. Control: 3,649. HPOG and PACE short-term follow-up surveys.

Employment in Q5, and Earnings in Q5: Treatment: 8,673. Control: 5,044. National Directory of New Hires.

Job Offers Health Insurance, and Public Assistance (TANF) Receipt: Treatment: 5,566. Control: 2,525. HPOG short-term follow-up survey.

In addition to reporting on these overall impacts of HPOG, the *Short-Term Impacts Report* examines a wide variety of disaggregated impacts, including impacts defined by various subgroups of individuals and type of grantee, as well as incremental impacts that derive from selected program designs and implementation choices.¹⁴ The report concludes that HPOG was generally effective for people regardless of their demographic characteristics. Those people who

¹⁴ The *Short-Term Impacts Report* as originally released in May 2018 contained an error in the subgroup impact estimates. A corrected report is available as of November 2019 at <https://www.acf.hhs.gov/opre/resource/health-profession-opportunity-grants-hpog-10-impact-study-interim-report-implementation-short-term-impacts>. The text here reflects the corrected results, which modified the conclusions of the subgroup analysis from those originally reported.

were receiving TANF, SNAP, or WIC at baseline had larger favorable impacts on educational progress than those who were receiving no public assistance at baseline. Those who came to HPOG not yet enrolled in education or training also saw greater gains in healthcare sector employment and job quality as well as a reduction in TANF receipt, relative to their control group counterparts. Those who were not employed at baseline or who entered with some college or a degree also saw greater gains in job quality than those who were employed or entered with a high school degree or less, respectively.

Although there were not differential subgroup impacts on educational progress based on presence of barriers to participation or work, those without any barriers at baseline showed larger impacts on earnings, relative to their control group counterparts.

The HPOG logic model implies that the combined evidence of increased enrollment in training and receipt of support services should affect a variety of outcomes, including those related to training, the labor market, and general well-being. As a result, the *Short-Term Impacts Report* concluded that HPOG has the potential to generate longer-term effects on education- and employment-related outcomes.

2.3 Confirmatory Outcomes and Research Questions for the Three-Year Analysis

For this *Three-Year Impacts Report*, we pre-specified two confirmatory outcomes in our *Three-Year Analysis Plan* (Litwok et al. 2018). In line with the ACF Evaluation Policy's principle of transparency, the *Analysis Plan* was published and registered prior to conducting any analyses.^{15,16}

The confirmatory measure in the *Short-Term Impacts Report* was educational progress, which was defined as having completed training or still being enrolled in training. We defined educational progress in this way because we expected many participants to remain enrolled in training as of the short-term follow-up. As of three years after random assignment, we expected that most study participants—including those who were in short- and longer-term educational programs or trainings—would have completed at least one education or training course. As a result, we committed to *training completion* as the appropriate measure of educational progress at the three-year follow-up.

The shift from educational progress to training completion also signals that study participants were expected to have transitioned to the labor market, making their earnings an especially important indicator of HPOG's success at this time. As a result, we also committed to *earnings* as a second confirmatory outcome. As a measure, earnings captures changes to study participants' employment, wages, and hours worked. As such, earnings is a comprehensive measure of labor market success.

¹⁵ Registration of the three-year analysis is available here: <https://osf.io/z986c/>.

¹⁶ ACF's Evaluation Policy is available here: <https://www.acf.hhs.gov/opre/resource/acf-evaluation-policy>.

We pre-specified both of these confirmatory outcomes to limit the number of statistical tests from which we would draw conclusions.¹⁷ As in the *Short-Term Impacts Report*, we refer to confirmatory outcomes by either their variable description or their domain. Exhibit 2.4 summarizes the confirmatory outcomes in each domain and their definitions, both in this report and the *Short-Term Impacts Report*.

Exhibit 2.4: Confirmatory Outcomes

Domain	Measure Description	Data Source(s)
<i>Short-Term Impacts Report</i>		
Educational progress	Training completion or ongoing enrollment in training	HPOG and PACE short-term follow-up surveys
<i>Three-Year Impacts Report</i>		
Educational progress	Training completion	Three-year survey
Earnings	Average quarterly earnings during the 12th and 13th quarters after random assignment	NDNH

Notes: The HPOG and PACE studies had slightly different follow-up survey instruments in the short-term. The three-year survey was the same for HPOG and PACE.

2.3.1 Research Questions for Three-Year Follow-Up

With HPOG's logic model and the conclusions of the *Short-Term Impacts Report* in mind, the analysis in this latest report approximately three years after participants entered the study examines the following research questions:

- What impacts do the locally implemented HPOG programs as a group have on the outcomes of participants and their families?
- To what extent do those impacts vary across selected subpopulations?
- To what extent do the education and employment experiences of HPOG participants over time suggest that they are following a career pathway?

Chapters 3, 4, 5, and 7 address the first (overall impacts) question; Chapters 6 and 7 address the second (subgroup impacts) question; and Chapter 8 addresses the third (descriptive) question.

¹⁷ See Section 2.2.1 of the *Three-Year Analysis Plan* (Litwok et al. 2018) for more detailed discussion on this issue. Although we have two confirmatory outcomes, because they are in different domains, we make no statistical adjustments, per What Work Clearinghouse standards (ED/IES 2017).

Impact Analysis Data and Analytic Methods

The chapters that follow report impacts of the average effect of being offered access to the HPOG Program. This textbox summarizes outcome classifications, data sources, and analytic methods in brief.

Outcome Classifications

The impact analysis distinguishes among three types of outcomes: confirmatory, secondary, and exploratory. The **confirmatory outcomes** are the main indicators of the extent to which the program is making progress toward its goals. **Secondary outcomes** are additional important outcomes identified in the HPOG logic model. **Exploratory outcomes** are of two types: (1) outcomes of interest that may be affected by the program but are not identified in the logic model; and (2) alternative specifications of confirmatory and secondary outcomes.

The logic model hypothesizes that HPOG will have a favorable impact on each of the confirmatory and secondary outcomes by three years after random assignment. Because these hypotheses are directional, we conduct one-sided hypothesis tests for confirmatory and secondary impacts. For one-sided tests, failure to reject the null hypothesis indicates that there is no evidence that HPOG had a favorable impact for that outcome.

We do not necessarily have directional hypotheses for impacts on exploratory outcomes, so we conduct two-sided hypothesis tests. We also estimate the impact for selected outcomes by subgroup and test for differences in impacts between subgroups. The subgroup analyses are exploratory, so all of the subgroup tests—both the impacts for each subgroup and differences between subgroups—are conducted using two-sided hypothesis tests.

Data Sources

We began administering a follow-up survey of study participants approximately three years after their random assignment. The **three-year survey** captures data to measure impacts on key intermediate-term program outcomes. The survey captures information on participants' education and employment history; credentials earned; wages, hours worked, fringe benefits, and other indicators of job quality; school loans and other educational assistance; 21st century skills; and overall indicators of financial well-being. In addition, for participants with children, the survey captures information about parenting practices and the educational experiences of children.

We used data from the **National Directory of New Hires (NDNH)** to construct outcomes of earnings and employment at about three years after randomization, as well as baseline measures of the same constructs. The NDNH collects individual quarterly earnings from state Unemployment Insurance (UI) records, augmented with data from some employers not included in the UI program (e.g., the federal government). Other earnings and employment types, in particular self-employment income, are not reported to the NDNH. Generally, participants missing earnings in NDNH in a particular quarter were not employed in covered jobs in that quarter. However, a small proportion may have been employed in covered jobs but the administrative records did not match.

Impact Analysis Methods

Because the treatment and control group members were assigned to their groups randomly, the only systematic difference between the groups is that the treatment group members were offered the opportunity to participate in HPOG. As is standard practice, the study confirmed analytically that the two groups are otherwise similar (see Harvill, Moulton, and Peck 2015).

The difference in mean outcomes between the treatment group members and the control group is an estimate of the HPOG Program's "impact." With random assignment, we can infer that any difference between those mean outcomes that is statistically significantly different from zero was *caused* by the offer of HPOG services. Because we randomized the *offer* of access to HPOG, this impact analysis provides an estimate of the impact of that offer. It ignores whether participants actually took up that offer (although most, 96 percent, did).

To estimate the impact on our designated outcomes, we use a multi-level regression model that ensures that standard errors are calculated accurately for individuals within programs. For additional information related to the computation and presentation of the report's outcome measurement, data manipulation, and impact estimation procedures, see the *Three-Year Analysis Plan* (Litwok et al. 2018).

How to Read the Impact Exhibits in This Report

The exhibits in the chapters that follow report on the impact of HPOG using a consistent format. Here we describe the appropriate interpretation of information in these tables. The sample table below presents the impact of HPOG on three measures of educational progress from Exhibit 3.1. The table reports the mean level of each outcome for both the treatment and control groups. The “Level of Evidence” column reports whether outcomes are confirmatory, secondary, or exploratory, as defined in the preceding textbox.

For each outcome the *difference* between the two means is the impact of being offered HPOG services, estimated using multiple regression. The “Treatment Group Mean” and “Control Group Mean” columns report regression-adjusted means. The table’s “Impact” column shows that the treatment group was about 13 percentage points more likely than the control group to have completed training. We also report relative impact in the right-most column, which is the impact divided by the control group mean. The relative impact offers a sense of how “big” or “small” the impact is, at least relative to the control group’s level.

Impacts marked with one or more symbols are statistically significant, indicating that it is unlikely that these impacts are due to chance. Confirmatory and secondary tests are one-sided (with statistical significance indicated by hashtags), tests we use because we have a directional hypothesis for these impacts. In comparison, exploratory tests use a two-sided test (with statistical significance indicated by asterisks), a test we use because we do not have a directional hypothesis. Three, two, or one symbol, respectively, corresponds to whether the impact is statistically significant at the 1 percent, 5 percent, or 10 percent level. The more symbols, the less likely the finding is due to chance.

Sample Table. Overall Impacts on Educational Progress Outcomes

Outcome	Level of Evidence	Treatment Group Mean	Control Group Mean	Impact	Relative Impact
Training completion (%) ^a	Confirmatory	75.2	62.7	12.5###	19.9
Obtained certificate, license, or credential (%) ^a	Exploratory	58.1	45.4	12.7***	28.0
Confidence in career knowledge (range is 1 to 4) ^b	Secondary	3.40	3.37	0.03##	0.8

Notes: Confirmatory and secondary findings use a one-sided hypothesis test, and exploratory findings use a two-sided hypothesis test. Statistical significance levels for one-sided tests are indicated with hashtags, as follows: ### = 1 percent; ## = 5 percent; # = 10 percent. Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Sample Sizes and Sources:

^a Treatment: 6,027. Control: 3,305. Three-year survey.

^b Treatment: 6,476. Control: 3,551. Three-year survey.

Appendix B provides additional detail on the construction of measures, including outcomes, covariates, and subgroup identifiers. Appendices C through G contain analytic results that include standard errors, confidence intervals, and post-hoc minimum detectable effect calculations, instructions on how to interpret these additional numbers, and impact estimates for additional exploratory outcomes.

3. Impacts on Educational Progress

Summary of Key Findings: Educational Progress

- **HPOG increased educational progress**, defined as completing training. As of the three-year survey 75 percent of the treatment group had made educational progress, compared to 63 percent of the control group. The impact of about 13 percentage points represents a 20 percent relative increase.
- **HPOG increased average training duration**, but it did not increase receipt of longer-term college certificates or degrees. The treatment group was more likely to obtain a certificate, license, or credential; complete a diploma or certificate for regular college classes; or receive a vocational training certificate.
- **HPOG increased self-reported confidence in career knowledge**. The increase of 0.03 points on a four-point scale is small relative to the control group. HPOG also increased self-reported progress toward long-term educational goals by 4 percentage points, a relative increase of 6 percent.

This chapter reports HPOG's impact on educational progress. The analysis assesses the extent to which HPOG affects enrollment in and completion of training, confidence in career knowledge, and perception of progress toward long-term educational goals. These outcomes reflect key features of HPOG's logic model, which predicts that impacts within this domain will lead to impacts on labor market outcomes such as employment and earnings.

3.1 Overall Impacts on Educational Progress Outcomes

- **HPOG increased educational progress, defined as having completed training.**

As of the three-year survey, 75 percent of the treatment group had completed training, compared to 63 percent of the control group. The difference of 13 percentage points represents a nearly 20 percent relative improvement over the control group. Exhibit 3.1 reports the impact results for training completion and other measures of educational progress defined in the textbox on the next page.

HPOG increased three of the four measures that comprise the study's primary measure of educational progress. HPOG led to a 13 percentage point increase in obtaining a certificate, license, or credential (58 percent in the treatment group versus 45 percent in the control group). The treatment group also experienced an increase of 6 percentage points on completion of a diploma or certificate for completing regular college classes (18 percent in the treatment group versus 11 percent in the control group). Finally, there was an 8 percentage point impact on receipt of a vocational training certificate (22 percent in the treatment group versus 14 percent in the control group). Each of these increases was sizeable relative to the control group.

Overview of Outcome Measures: Educational Progress

The outcomes in this chapter are based on participant responses to the three-year survey. The confirmatory outcome in this chapter, which reflects whether the HPOG Program is successful in achieving its goals, is **training completion**. Our set of secondary and exploratory outcomes provide additional evidence regarding HPOG's impact on educational progress. We define **confidence in career knowledge** as a key secondary measure, which captures the added psycho-social benefit that is predicted to materialize in the longer-term as participants make educational progress and embark on a career in their chosen field. We also define a series of exploratory outcomes, which measure different features of education and training.

Outcome	Outcome Type	Variable Description
Training completion	Confirmatory	Measures whether respondent achieved any of the following since randomization: <ul style="list-style-type: none"> • Obtained a professional, state, or industry certificate, license, or credential • Completed a diploma or certificate for completing regular college classes • Received a diploma or certificate from a school for completing vocational training • Completed a degree (associate's or bachelor's) The next four variables each represent one of these elements.
Obtained certificate, license, or credential	Exploratory	Obtained a professional certificate, license, or credential since randomization
Completed diploma or certificate for regular college classes	Exploratory	Completed a diploma or certificate for completing regular college classes (excluding associate's or bachelor's degrees) since randomization
Received vocational training certificate	Exploratory	Received a vocational training diploma or certificate since randomization
Completed college degree	Exploratory	Completed college degree, either associate's or bachelor's, since randomization
Months of full-time equivalent enrollment	Exploratory	Total months of full-time equivalent (FTE) enrollment in education or training since randomization. One month of full-time enrollment is equal to 1 FTE month; one month of part-time enrollment is equal to 0.5 FTE months.
Earned ≥ 1 year college certificate or degree	Exploratory	Earned a degree or certificate for completing regular college classes requiring at least a full year of credit since randomization
Currently enrolled in training	Exploratory	Enrolled in training at the time of the three-year follow-up
Confidence in career knowledge	Secondary	Scale measuring confidence in career knowledge, scale ranges from 1 to 4: <ol style="list-style-type: none"> 1. I'm not sure how to accurately assess my abilities and challenges; 2. I know how to make a plan that will help me achieve my goals for the next five years; 3. I know how to get help from staff and teachers with an issues that might arise when I am at school; 4. I'm not sure what type of job is best for me; 5. I know the type of employer I want to work for; 6. I know the occupation I want to be in; 7. I'm not sure what kind of education and training program is best for me.
Perception of progress toward long-range educational goals	Exploratory	Strongly or somewhat agrees with the statement "I am making progress towards my long-range educational goals"

Exhibit 3.1: Overall Impacts on Educational Progress

Outcome	Level of Evidence	Treatment Group Mean	Control Group Mean	Impact	Relative Impact
Training completion (%) ^a	Confirmatory	75.2	62.7	12.5 ^{###}	19.9
Obtained certificate, license, or credential (%) ^a	Exploratory	58.1	45.4	12.7 ^{***}	28.0
Completed diploma or certificate for regular college classes (%) ^a	Exploratory	17.7	11.2	6.4 ^{***}	57.4
Received vocational training certificate (%) ^a	Exploratory	21.7	14.0	7.7 ^{***}	55.4
Completed college degree (%) ^a	Exploratory	23.0	23.0	-0.0	-0.1
Months of full-time equivalent enrollment ^a	Exploratory	7.6	6.8	0.8 ^{***}	11.1
Earned ≥ 1 year college certificate or degree ^a	Exploratory	27.0	25.5	1.5	5.8
Currently enrolled in training (%) ^a	Exploratory	13.0	13.3	-0.2	-1.6
Confidence in career knowledge (range is 1 to 4) ^b	Secondary	3.40	3.37	0.03 ^{##}	0.8
Perception of progress toward long-term educational goals (%) ^b	Exploratory	75.2	71.1	4.2 ^{***}	5.9

Notes: Confirmatory and secondary findings use a one-sided hypothesis test, and exploratory findings use a two-sided hypothesis test. Statistical significance levels for one-sided tests are indicated with hashtags, as follows: ^{###} = 1 percent; ^{##} = 5 percent; [#] = 10 percent. Statistical significance levels for two-sided tests are indicated with asterisks, as follows: ^{***} = 1 percent; ^{**} = 5 percent; ^{*} = 10 percent.

Sample Sizes and Sources:

^a Treatment: 6,027. Control: 3,305. Three-year survey.

^b Treatment: 6,476. Control: 3,551. Three-year survey.

- **HPOG increased average training duration, but did not increase receipt of longer-term college certificates or degrees.**

In addition to increasing completion of training, HPOG also led to more months of training. On average, the treatment group completed 7.6 full-time equivalent months of training as of the three-year survey, an increase of 0.8 months (about 24 days) over the control group.

Despite this increase in training duration, HPOG did not lead to an increase in receipt of longer-term credentials, as of the three-year follow-up. For example, there was no detectable impact on completion of a college degree (just under a quarter of both the treatment and control groups), which includes associate's degrees or higher. Similarly, there was no detectable impact on a broader outcome that includes degrees or certificates that require a year or more of college credit (just over a quarter of both groups).

These results indicate that HPOG was successful in increasing both the duration of training and receipt of professional and vocational certificates. However, HPOG training did not lead to an increase in longer-term degrees for the sample as a whole. It is possible that some study participants may have been enrolled in longer-term programs that extend beyond the three years examined in this report. However, only about 13 percent of the sample was still enrolled in education or training at the three-year follow-up (with no statistically significant difference between the treatment and control group). As a result, we would not expect to see a substantial change in the impact on degree receipt from those still enrolled.

- **HPOG increased the treatment group's self-assessed confidence in career knowledge and perception of progress toward long-term educational goals.**

In addition to higher rates of educational progress, the treatment group reported higher levels of self-assessed career knowledge and progress toward long-term educational goals. On a scale from 1 to 4, the treatment group reported a score of 3.40 in confidence in career knowledge, versus a score of 3.37 for the control group. These scores imply that, on average, both groups answer between “somewhat agree” and “strongly agree” to statements about their ability to assess their own abilities, make a plan to achieve their goals, get help from staff and teachers, find an occupation and employer, and determine the best education or training program for themselves. This impact of 0.03 points is substantively small.¹⁸

In addition, 75 percent of the treatment group reported progress toward their long-term educational goals, compared to 71 percent of the control group. This 4 percentage point difference represents a 6 percent relative increase.

3.2 Summary

As described in the logic model, we expect that HPOG would have led to an increase in educational progress in the three years after random assignment. Indeed, we found that HPOG increased training completion, which is one of the two confirmatory outcomes examined in this report. These results are broadly consistent with the findings in the *Short-Term Impacts Report*, which also found that HPOG increased educational progress, defined then as enrollment in or completion of training as of about 15-18 months after random assignment.

A sizeable share of the control group still accessed training despite not having access to HPOG. Nearly two thirds of the control group completed training, suggesting that local HPOG programs operated in training-rich environments and targeted very motivated participants. Control group members also reported high scores on self-assessed confidence in career knowledge and perception of progress toward their educational goals, consistent with the high level of training access.

¹⁸ We do not discuss the magnitude of the relative impact for this measure because it is difficult to interpret the relative impact for an ordinal measure.

4. Impacts on Labor Market Outcomes

Summary of Key Findings: Labor Market

- **HPOG had no detectable impact on earnings and a small impact on overall employment.** Both the treatment and control group earned an average of approximately \$5,000 over those same quarters. Administrative earnings data show 82 percent of the treatment group was employed in the 12th or 13th quarter after random assignment, a statistically significant improvement of 1 percentage point over the control group.
- **HPOG increased healthcare employment and improved employment conditions.** According to the three-year survey, 56 percent of the treatment group was employed in healthcare, compared to 44 percent of the control group. The treatment group was also more likely to work at a job that offered health insurance and report that they worked in a supportive work environment.
- **HPOG improved career progress, defined as both completing training and having earnings growth.** Forty-three (43) percent of the treatment group made career progress, versus 36 percent of the control group. Exploratory analyses suggest that this impact is driven by increases in training completion.

In this chapter we report HPOG's impact on labor market outcomes. These outcomes include measures of general earnings and employment and other outcomes reflecting the conditions of employment. We also report on career progress, or the extent to which individuals experienced both educational progress and earnings growth. These outcomes represent the next step in HPOG's logic model after initial education or training. The favorable impacts on training completion in Chapter 3 set the foundation for possible favorable impacts on labor market outcomes.

4.1 Impacts on Earnings and Employment

- **HPOG had no detectable impact on earnings in the 12th and 13th quarters after randomization.**

According to administrative earnings data from the NDNH, both the treatment and control groups earned about \$5,000 per quarter (\$5,039 for the treatment group, \$4,997 for the control group; Exhibit 4.1). These earnings correspond to annual earnings of approximately \$20,000.¹⁹ Our analysis concludes that, if HPOG had any impact on earnings, it was smaller than the evaluation could detect (no larger than \$170 in the 12th and 13th quarters).²⁰

¹⁹ In Appendix D, we use survey data as a sensitivity analysis to investigate whether we can detect any changes to weekly earnings, hours worked, or both. The analysis reveals a positive impact of \$15 on weekly earnings and no detectable impact on weekly hours or the hourly wage. These findings are not inconsistent with the NDNH findings: an impact of \$42 per quarter is equivalent to an impact of about \$3 per week, which is within the 90 percent confidence interval of survey-reported earnings. We also estimate the non-experimental impact on the hourly wage.

²⁰ See Appendix D for standard errors and confidence intervals that correspond to the findings in this chapter.

Overview of Outcome Measures: Labor Market

The outcomes in this chapter are based on two sources: participant responses to the three-year survey and administrative data on quarterly earnings from the NDNH. We selected **earnings in the 12th and 13th quarters** as the confirmatory outcome for the three-year follow-up as the key measure by which we assess whether HPOG improved labor market outcomes. We chose earnings because it captures changes to employment, wages, and hours worked. In addition to earnings, we define four secondary outcomes that are also important measures of HPOG's impact on labor market outcomes: (1) **employment in the 12th or 13th quarter** measures whether participants were employed in either of these quarters; (2) **current or most recent job in healthcare** is a measure of whether HPOG led to increased employment in the healthcare sector; (3) **current or most recent job offers health insurance** is a measure of job quality to assess whether participants are employed in jobs with benefits; and (4) training completion and earnings growth is a measure of **career progress**, which measures the extent to which participants both completed training and experienced earnings growth.

Outcome (Source)	Outcome Type	Variable Description
Earnings (NDNH)		
Earnings in 12th and 13th quarters	Confirmatory	Average quarterly earnings during the 12th and 13th quarters after random assignment
Earnings in each of quarters 0 through 13	Exploratory	Earnings in each of the quarters: quarter of randomization through quarter 13
Employment (NDNH)		
Employment in 12th or 13th quarter	Secondary	Employed in either the 12th or 13th quarter after the quarter of randomization
Employment in each of quarters 0 through 13	Exploratory	Employment in each of the quarters: quarter of randomization through quarter 13
Employment Conditions (Survey)		
Current or most recent job is in healthcare	Secondary	Current or most recent job is in healthcare
Current or most recent job offers health insurance	Secondary	Current or most recent job offers health insurance
Supportive working environment	Exploratory	Currently employed in a job offering a supportive working environment, as measured by access to health insurance benefits, sick leave, promotion potential, supervisor support, and flexible work schedule
Career Progress (NDNH & Survey)		
Training completion and earnings growth	Secondary	Completed training and experienced average earnings growth of at least \$20 per quarter between 5th quarter and 13th quarter after randomization ^a

Notes:

^a We determined the wage growth threshold by using the earnings observed in our sample and typical wage growth observed in the general population. For wage growth, we used median one-year wage growth rates from the Current Population Survey between January 2011 and July 2018 as reported by the Atlanta Federal Reserve (see <https://www.frbatlanta.org/chcs/wage-growth-tracker.aspx?panel=1>). Overall, the average growth rate was 2.71%. The growth rate varied across subgroups and occupations as follows: high school diploma or less: 2.48%; associate's degree: 2.6%; low-skill occupations: 1.9%; education and health industries: 2.3%. Overall, this means that a one-year growth rate of between 2% and 2.5% is reasonable, which corresponds to a 0.55% growth in quarterly earnings. We then multiply 0.55% by the average earnings in the 5th quarter after randomization observed in our sample (\$3,671), which equals approximately \$20 per quarter.

- **HPOG slightly increased overall employment in the 12th and 13th quarters after randomization.**

Exhibit 4.1 also reports that 82 percent of treatment group members were employed at some time during the 12th or 13th quarters after randomization, compared to 81 percent of control group members. Though this 1 percentage point impact is small in magnitude, it represents a statistically significant improvement over a very high rate of employment in the control group.

Exhibit 4.1: Impacts on Earnings and Employment

Outcome	Level of Evidence	Treatment Group Mean	Control Group Mean	Impact	Relative Impact
Average quarterly earnings during the 12th and 13th quarters (\$)	Confirmatory	5,039	4,997	42	0.8
Employment in 12th or 13th quarter (%)	Secondary	82.0	81.0	1.0 [#]	1.2

Notes: Confirmatory and secondary findings use a one-sided hypothesis test, and exploratory findings use a two-sided hypothesis test. Statistical significance levels for one-sided tests are indicated with hashtags, as follows: ### = 1 percent; ## = 5 percent; # = 10 percent. Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Sample Sizes and Sources:

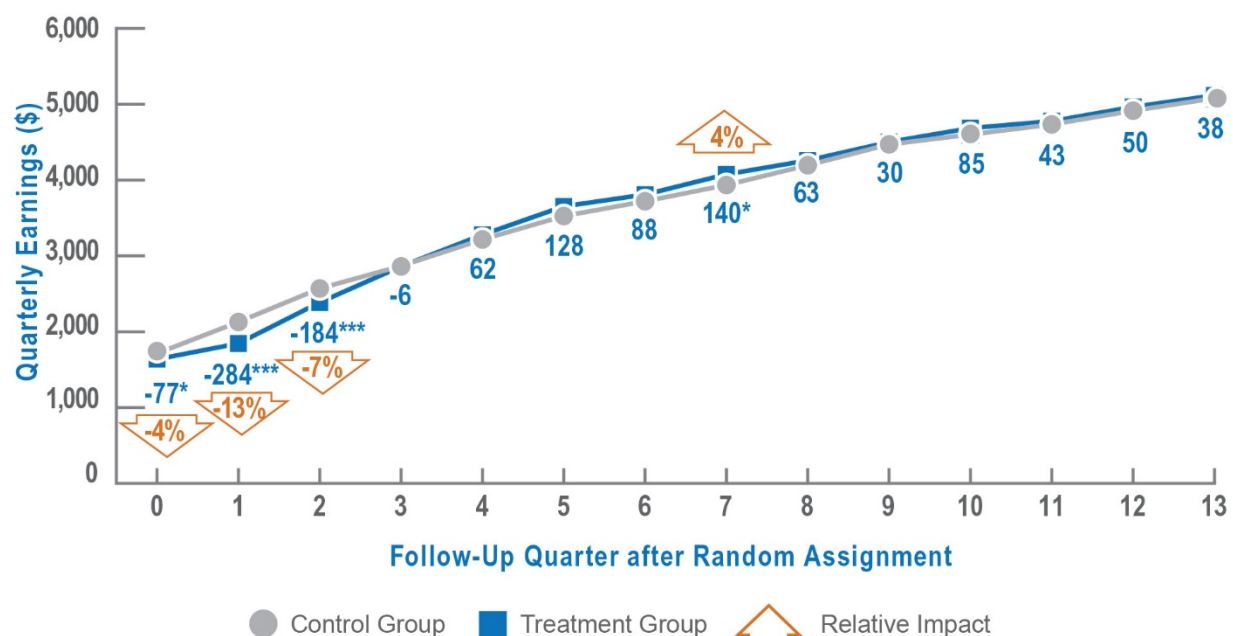
Treatment: 8,672. Control: 5,044. National Directory of New Hires.

Exhibits 4.2 and 4.3 show how both earnings and employment, respectively, increased substantially over time for both the treatment and control groups. As is common in job training programs, just after randomization the treatment group had lower levels of earnings and employment than the control group, likely due to the treatment group's greater participation in training.

The early negative earnings impacts are not statistically significant after the third quarter. There were generally no detectable earnings impacts—with the exception of in the seventh follow-up quarter, where the impact of \$140 is statistically significant.²¹ Similarly, after the third quarter, the impacts on employment are not statistically significant; toward the end of the follow-up period (Q11), the impacts become positive, although small.

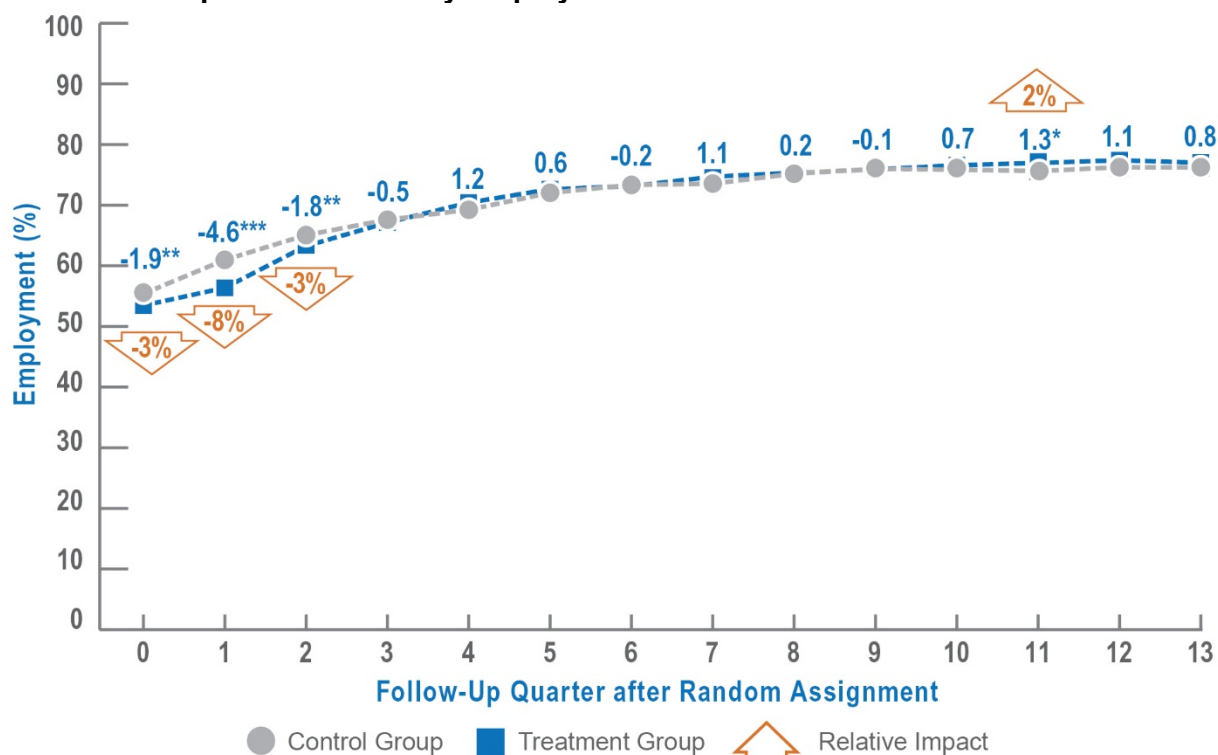
In addition to analyzing quarterly impacts, we examined whether the trend for earnings or employment differed between the treatment and control groups. That analysis found no statistically significant differences in the slopes of the trend lines (see Appendix D).

²¹ The *Short-Term Impacts Report* found a statistically significant impact on quarterly earnings in Q5 of \$137, with the treatment group earning \$3,482 and the control group earning \$3,345. Two things have changed from that report. First, NDNH data were updated, which increased average earnings levels and slightly changed the Q5-reported impact (to \$128). Second, in the *Short-Term Impacts Report*, Q5 earnings was a secondary outcome, for which statistical significance was determined using a one-tailed test. Applying that *one-tailed test*, both impact estimates would be statistically significant ($.05 < p < .10$). In this report, Q5 earnings are an exploratory outcome, for which statistical significance is determined using a two-tailed test. If we would apply the *two-tailed test* used in this *Three-Year Impacts Report*, both the earlier reported estimated impact of \$137 and the currently reported impact of \$128 would not be statistically significant ($p > .10$).

Exhibit 4.2: Impacts on Quarterly Earnings Over Time

Notes: All comparisons use a two-sided hypothesis test. Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Sample Sizes and Sources: Treatment: 8,672. Control: 5,044. National Directory of New Hires.

Exhibit 4.3: Impacts on Quarterly Employment Over Time

Notes: All comparisons use a two-sided hypothesis test. Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Sample Sizes and Sources: Treatment: 8,672. Control: 5,044. National Directory of New Hires.

4.2 Impacts on Other Labor Market Outcomes

- HPOG increased employment in healthcare.**

According to the three-year survey, HPOG increased the rate of employment in the healthcare sector: 56 percent of the treatment group was employed in healthcare, compared to 44 percent of the control group (Exhibit 4.4). This increase of 12 percentage points represents a 27 percent relative increase. The effect on healthcare employment was much larger than the effect on overall employment (see Exhibit 4.1).²²

Exhibit 4.4: Impacts on Other Labor Market Outcomes

Outcome	Level of Evidence	Treatment Group Mean	Control Group Mean	Impact	Relative Impact
Current or most recent job is in healthcare	Secondary	55.6	43.9	11.6 ^{###}	26.5
Current or most recent job offers health insurance	Secondary	58.5	56.2	2.3 ^{##}	4.1
Self-reported favorable job characteristics	Exploratory	30.7	28.2	2.5 ^{**}	8.9

Notes: Confirmatory and secondary findings use a one-sided hypothesis test, and exploratory findings use a two-sided hypothesis test. Self-reported favorable job characteristics reflects agreement with four favorable elements of job characteristics (flexibility, supportiveness, benefits, and advancement). See Appendix D for more information.

Statistical significance levels for one-sided tests are indicated with hashtags, as follows: ^{###} = 1 percent; ^{##} = 5 percent; [#] = 10 percent.

Statistical significance levels for two-sided tests are indicated with asterisks, as follows: ^{***} = 1 percent; ^{**} = 5 percent; ^{*} = 10 percent.

Sample Sizes and Sources:

Treatment: 6,027. Control: 3,305. Three-year survey.

- HPOG increased access to employer-provided health insurance and a supportive work environment.**

Non-wage characteristics of employment reflect a key aspect of compensation that is often lacking in jobs for low-wage workers. HPOG led to slight improvements in several non-wage job characteristics (see Exhibit 4.4). HPOG increased the proportion of individuals whose current or most recent job offers health insurance from 56 percent to 58 percent; this statistically significant difference of 2 percentage points represents a 4 percent relative increase.

In addition, 41 percent of the treatment group reported having a supportive working environment, compared to 38 percent of the treatment group (see Exhibit 4.4).²³ This difference of 3 percentage points represents a relative increase of 9 percent.

- HPOG increased career progress, defined as completion of training and earnings growth.**

Educational progress and earnings growth reflect improvement in *both* confirmatory outcome domains, which in combination is one way to define career progress. Exhibit 4.5 reports impacts on this measure of career progress. We find that 43 percent of the treatment group completed

²² This is true both for employment measured using NDNH and for employment as reported in the survey. See Appendix D for more information.

²³ A job is considered to have a supportive working environment if the worker reports having access to a combination of family-friendly policies, helpful coworkers and supervisors, high job satisfaction, fringe benefits, and opportunities for advancement. See Appendix B for more information on this measure.

training and experienced earnings growth, compared to 36 percent of the control group. This impact of 7 percentage points represents a 19 percent relative increase.

When we examine the components of this measure we find large impacts for training completion only. As a result, we conclude that the career progress impact is being driven by higher training completion within the treatment group; participants in the treatment and control groups experienced similar levels of earnings growth. In Chapter 8 we describe the patterns of training and employment experiences for those individuals in the treatment group.

Exhibit 4.5: Overall Impacts on Career Progress

Outcome	Level of Evidence	Treatment Group Mean	Control Group Mean	Impact	Relative Impact
Training completion and earnings growth (%) ^a	Secondary	43.0	36.2	6.8 ^{###}	18.9
Training completion (%) ^b	Exploratory	75.2	62.7	12.5 ^{***}	19.9
Earnings growth (%) ^c	Exploratory	57.7	57.3	0.4	0.7

Notes: Confirmatory and secondary findings use a one-sided hypothesis test, and exploratory findings use a two-sided hypothesis test. Statistical significance levels for one-sided tests are indicated with hashtags, as follows: ^{###} = 1 percent; ^{##} = 5 percent; [#] = 10 percent. Statistical significance levels for two-sided tests are indicated with asterisks, as follows: ^{***} = 1 percent; ^{**} = 5 percent; ^{*} = 10 percent.

Sample Sizes and Sources:

^a Treatment: 6,027. Control: 3,305. National Directory of New Hires and three-year survey.

^b Treatment: 6,027. Control: 3,305. Three-year survey.

^c Treatment: 6,027. Control: 3,305. National Directory of New Hires.

4.3 Summary

The HPOG logic model suggests that the training and services provided by HPOG should produce earnings gains for participants. However, despite the increase in training completion reported in Chapter 3, in this chapter we found no evidence of earnings impacts in the three years after random assignment. Although both treatment and control group members saw increases in their levels of earnings over time—rising from about \$2,000 in the quarter of random assignment to \$5,000 three years later—treatment group outcomes were no better than the control group. The high levels of employment over the three years of study follow-up in both the treatment and control groups (more than 80 percent received some employment earnings in either the 12th or 13th quarters after randomization) imply that increases in earnings need to be realized through higher wages or more hours, not just through entry into employment.

Although there is no impact on earnings, a confirmatory outcome, the results in this chapter imply that HPOG caused some changes in other labor market outcomes. Notably, HPOG produced a slight increase in overall employment and a sizeable increase in employment in healthcare (a 27 percent increase relative to the control group). Treatment group members also reported being employed in somewhat higher-quality jobs, as measured by having greater access to employer-provided health insurance and being more likely to report having a supportive work environment.

The HPOG FOA noted that shifting employment to healthcare would imply greater earnings, but that does not seem to be the case as of the three-year follow-up. A plausible explanation for the findings in this chapter is that jobs in healthcare are perceived to be higher quality despite not necessarily offering higher wages (and perhaps offering lower wages). To assess this possibility, we examine specific trainings that study members received and the subsequent

occupations they reported in the follow-up survey (see Chapter 8). These descriptions confirm that the most commonly taken trainings and occupations varied substantially in their expected earnings. Two tracks emerge: short-term trainings generally lead to low-earnings occupations (e.g., Nursing Assistant), whereas longer-term trainings generally lead to better-paying occupations (e.g., Registered Nurse). This apparent split in the sample—as elaborated in Chapter 8—creates alternative experiences, which apparently serve to result in no detectable impact on earnings for the sample as a whole.

5. Impacts on General Well-Being

Summary of Key Findings: General Well-Being

- **HPOG did not decrease public assistance use overall.** Forty-eight (48) percent of the treatment group received TANF, SNAP, or Medicaid in the month prior to the three-year survey, compared to 46 percent of the control group. Of the elements comprising this measure, receipt of TANF decreased and receipt of Medicaid increased for those in the treatment group.
- **HPOG had no detectable impact on personal or household income.** This measure includes income from all sources, including job earnings and public assistance benefits.
- **HPOG reduced financial hardship.** A smaller share of the treatment group reported generally not having enough money to make ends meet at the end of the month over the past year, compared to the control group.
- **HPOG improved psychological well-being and had no impact on barriers to school, work, job search, or family responsibilities.** HPOG improved treatment group members' core self-evaluation and reduced their perceived stress, compared to the control group. There was no detected difference in reports of childcare, transportation, or health conditions serving as a barrier.

In this chapter, we report HPOG's impact on general well-being. We examine outcomes across the domains of public assistance benefit receipt, economic status, financial hardship, psychological well-being, and barriers to school, work, job search, or family responsibilities. HPOG's logic model suggests improvements in these domains might arise as a result of improvements to educational and labor market outcomes. Given that HPOG improved educational progress (Chapter 3) but not earnings (Chapter 4), expectations for impacts within the well-being domain are ambiguous: if there are well-being benefits to educational progress alone, then we might expect changes in this domain; but if well-being benefits arise only via labor market improvements, then expectations for well-being impacts would be limited to just those subgroups for which we observed labor market impacts.

Overview of Outcome Measures: General Well-Being

The outcomes in this chapter are based on participant responses to the three-year survey. Two secondary measures are of particular interest: **Individual receipt of TANF, SNAP, or Medicaid** is a measure of public assistance receipt in the month prior to the three-year survey. **Financial hardship** is a self-reported measure of whether the participant reports typically not having enough to make ends meet at the end of the month over the past year.

Outcome	Outcome Type	Variable Description
<i>Public Assistance Benefits</i>		
Individual receipt of TANF, SNAP, or Medicaid	Secondary	Participant personally received benefits from TANF, SNAP, or Medicaid in the prior month
Individual receipt of TANF	Exploratory	Participant personally received benefits from TANF in the prior month
Individual receipt of SNAP	Exploratory	Participant personally received benefits from SNAP in the prior month
Individual receipt of Medicaid	Exploratory	Participant personally received benefits from Medicaid in the prior month
<i>Economic Status</i>		
Personal income	Exploratory	Total personal income received from all sources in prior month
Household income	Exploratory	Total household income received from all sources in prior month
<i>Financial Hardship</i>		
Participant reports generally not having enough money to make ends meet at the end of the month	Secondary	Self-reported measure of whether the participant reports generally not having enough to make ends meet at the end of the month over the past year
Used loans to pay for school or living expenses	Exploratory	Used loans in either own name or parent's name to pay for school or living expenses since study enrollment
<i>Psychological Well-Being</i>		
Core self-evaluation	Exploratory	A 12-item scale measuring an individual's evaluation of own abilities and control, scale ranges from 1 to 4: 1. I am confident I get the success I deserve in life. 2. Sometimes I feel depressed. 3. When I try, I generally succeed. 4. Sometimes when I fail I feel worthless. 5. I complete tasks successfully. 6. Sometimes, I do not feel in control of my work. 7. Overall, I am satisfied with myself. 8. I am filled with doubts about my competence. 9. I determine what will happen in my life. 10. I do not feel in control of my success in my career. 11. I am capable of coping with most of my problems. 12. There are times when things look pretty bleak and hopeless to me.
Perceived stress	Exploratory	A four-item scale measuring perceived stress, scale ranges from 0 to 4
<i>Barriers to School, Work, Job Search, or Family Responsibilities</i>		
Childcare barrier	Exploratory	Indicator for whether childcare arrangements very often interfered with school, work, job search, or family responsibilities
Transportation barrier	Exploratory	Indicator for whether transportation very often interfered with school, work, job search, or family responsibilities
Illness or health barrier	Exploratory	Indicator for whether illness or another health issue very often interfered with school, work, job search, or family responsibilities

5.1 Impacts on Public Assistance, Income, and Financial Hardship

- HPOG did not decrease public assistance use overall.**

We found that overall, 48 percent of the treatment group personally received benefits from one or more of TANF, SNAP, or Medicaid in the month prior to the three-year survey, compared to 46 percent of the control group (Exhibit 5.1). When we focus on the elements that make up this measure, however, we found a *decrease* in TANF use—of 0.8 percentage points (5.6 percent of the treatment group versus 6.4 percent of the control group). We observed an *increase* in Medicaid use of 2 percentage points (37 percent of the treatment group versus 35 percent of the control group, for a relative increase of 5 percent).^{24,25} There was no detectable impact in receipt of SNAP (about 34 percent of both the treatment and control groups was receiving SNAP).

Exhibit 5.1: Impacts on Public Assistance Benefits

Outcome	Level of Evidence	Treatment Group Mean	Control Group Mean	Impact	Relative Impact
Individual receipt of TANF, SNAP, or Medicaid in prior month (%)	Secondary	47.6	46.3	1.3	2.8
Individual receipt of TANF (%)	Exploratory	5.6	6.4	-0.8*	-12.3
Individual receipt of SNAP (%)	Exploratory	33.9	33.8	0.1	0.2
Individual receipt of Medicaid (%)	Exploratory	37.1	35.2	1.9**	5.4

Notes: Confirmatory and secondary findings use a one-sided hypothesis test, and exploratory findings use a two-sided hypothesis test. Statistical significance levels for one-sided tests are indicated with hashtags, as follows: ### = 1 percent; ## = 5 percent; # = 10 percent. Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Sample Sizes and Sources:

Treatment: 6,476. Control: 3,551. Three-year survey.

- HPOG did not have a detectable impact on personal or household income.**

Exhibit 5.2 shows that, as of the three-year survey, there was no detectable difference between the treatment and control groups in personal or household income. These measures of income captured income from all sources, including job earnings and private and public assistance.

²⁴ The increase in Medicaid receipt has several potential explanations. First, state expansions of Medicaid over 2014-2016 coincided with this study's follow-up; the support services offered to those in HPOG may have encouraged application to Medicaid and/or removed some of the institutional barriers that might have inhibited application. Another possibility is that treatment group members had more access to Medicaid via a stronger connection to healthcare training and employment. This could reduce the administrative and informational barriers associated with Medicaid enrollment or employers could ensure that people get signed up. Still another possibility is that treatment group members may have had a greater understanding of the importance of health insurance (an artifact of the impact on employment in healthcare) and made sure they were covered in any way they could (employer-sponsored or Medicaid).

²⁵ Medicaid receipt is available for HPOG-only grantees at baseline and in the short-term. For that group, levels of Medicaid receipt evolved as follows over time: about 45 percent of both the treatment and control group were receiving Medicaid at baseline; about 46 percent of both the treatment and control group were receiving Medicaid at the short-term follow-up; and about 39 percent of the treatment group and 38 percent of the control group were receiving Medicaid at the three-year follow-up.

Exhibit 5.2: Impacts on Income and Financial Hardship

Outcome	Level of Evidence	Treatment Group Mean	Control Group Mean	Impact	Relative Impact
Personal income received from all sources in the prior month (\$)	Exploratory	1,668	1,668	-1	-0.0
Household income received from all sources in the prior month (\$)	Exploratory	2,552	2,585	-32	-1.3
Participant reports generally not having enough money to make ends meet at the end of the month (%)	Secondary	24.1	27.3	-3.2###	-11.6
Used loans in either own name or parent's name to pay for school or living expenses since study enrollment (%)	Exploratory	24.8	25.5	-0.6	-2.5

Notes: Confirmatory and secondary findings use a one-sided hypothesis test, and exploratory findings use a two-sided hypothesis test. Statistical significance levels for one-sided tests are indicated with hashtags, as follows: ### = 1 percent; ## = 5 percent; # = 10 percent. Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Sample Sizes and Sources:

Treatment: 6,476. Control: 3,551. Three-year survey.

- HPOG reduced self-reported financial hardship.**

As of the three-year survey, 24 percent of the treatment group reported generally not having enough money to make ends meet at the end of the month over the past year, compared to 27 percent of the control group (see Exhibit 5.2). This decrease of 3 percentage points represents a 12 percent relative improvement. A possible explanation for this impact is that the increased healthcare coverage (we observed impacts on both employer-provided insurance and Medicaid use) could be providing a cushion for treatment group members that results in their higher self-reported ability to make ends meet.

5.2 Impacts on Psychological Well-Being and Barriers

- HPOG slightly improved psychological well-being.**

HPOG led to slight improvements in two measures of self-reported psychological well-being. On a measure of core self-evaluation, HPOG led to a slight increase of 0.05 points on a scale from 1 to 4 (Exhibit 5.3). The levels of this measure for both the treatment and control group imply more favorable psychological well-being. The interpretation of this measure changes between values of 2 and 3, where responses go from “disagree” to “agree.”²⁶ Similarly, on a measure of perceived stress, HPOG led to a decrease of 0.05 points on a scale from 0 to 4, for a relative decrease of 2 percent. Both of the improvements to psychological well-being are statistically significant but relatively small.

²⁶ We reverse code negative measures so that all items in the scale reflect favorable well-being.

Exhibit 5.3: Impacts on Psychological Well-Being and Barriers

Outcome	Level of Evidence	Treatment Group Mean	Control Group Mean	Impact	Relative Impact
<i>Psychological Well-Being</i>					
Core self-evaluation (range is 1 to 4)	Exploratory	3.28	3.23	0.05***	1.5
Perceived stress (range is 0 to 4)	Exploratory	2.02	2.07	-0.05**	-2.4
<i>Barriers to School, Work, Job Search, or Family Responsibilities</i>					
Childcare arrangements (%)	Exploratory	15.5	14.9	0.6	3.8
Transportation (%)	Exploratory	10.8	10.9	-0.0	-0.4
An illness or health condition (%)	Exploratory	9.0	8.9	0.1	1.2

Notes: Confirmatory and secondary findings use a one-sided hypothesis test, and exploratory findings use a two-sided hypothesis test. Statistical significance levels for one-sided tests are indicated with hashtags, as follows: ### = 1 percent; ## = 5 percent; # = 10 percent. Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Sample Sizes and Sources:

Treatment: 6,476. Control: 3,551. Three-year survey.

- **HPOG did not have a detectable impact on self-reported barriers to school, work, job search, or family responsibilities.**

In the three-year survey, individuals were asked whether certain barriers “fairly often” or “very often” interfered with school, work, job search, or family responsibilities.²⁷ Both the treatment and control group reported few barriers: about 15 percent reported that childcare arrangements were a barrier; 11 percent reported that transportation was a barrier; and 9 percent reported that an illness or health condition was a barrier (see Exhibit 5.3).

5.3 Summary

The HPOG logic model posits that the training and services provided by HPOG will lead to improved educational and labor market outcomes, which in turn will lead to improvements in economic and general well-being. As noted in the introduction to this chapter, because HPOG did not produce impacts on earnings after three years, we might not expect an impact on economic and general well-being. Nevertheless, we observe that HPOG generally had modest impacts on a variety of measures of well-being. HPOG did not reduce overall public assistance use.

Although HPOG did not increase individual or household income, HPOG did reduce reports of financial hardship. This result may stem from the increase in access to employer-provided health insurance (Chapter 4), the increased Medicaid receipt, the reduction in TANF use, or other factors associated with these changes.

Finally, HPOG led to slight improvements in self-reported psychological well-being. Both the treatment and control group generally reported high assessments of their own abilities and moderate levels of stress. HPOG had no impact on barriers to school, work, job search, or family responsibilities, suggesting that other factors are likely driving the improvements in psychological well-being—such as satisfaction from completing training or less stress due to lower levels of financial hardship.

²⁷ Note the phrasing of this question differed from baseline materials that asked about barriers to school or work only.

6. Impacts on Subgroups

Summary of Key Findings: Subgroups

For demographic subgroups

- HPOG increased *educational progress* more for those with dependent children; there were no differential *earnings* impacts. Across subgroups defined by participants' race/ethnicity, age, or whether they had dependent children, most of the impacts of HPOG reflected the overall estimated impact on these outcomes.

For policy-relevant subgroups

- HPOG increased *educational progress* for subgroups defined by baseline enrollment in training, educational attainment, barriers to school/work, and employment. Those who came into the program seemingly less prepared to engage in a program such as HPOG fared better in educational progress than their counterparts who were seemingly more prepared.
- There were differential impacts on *earnings* for subgroups defined by educational attainment and on *employment* for subgroups defined by barriers to school/work. Those who came into the program seemingly more prepared to engage in a program such as HPOG fared better on these measures than their counterparts who were less prepared.

For baseline public assistance status-defined subgroups

- HPOG increased *educational progress* more for those who were receiving WIC or SNAP at baseline, compared to those who were not receiving public assistance at baseline. Treatment group members who received WIC or SNAP at baseline saw a 16 percentage point increase in training completion relative to their control group counterparts. There were no differential earnings impacts.

This chapter reports variation in impacts for selected subgroups of interest. We define our subgroups in three categories: (1) baseline measures of demographic characteristics (race/ethnicity, age, and presence of dependent children); (2) what we call “policy-relevant” characteristics; and (3) receipt of public assistance.²⁸ For which outcomes we report subgroup results varies with the particular subgroups, as pre-specified in the *Three-Year Analysis Plan* (Litwok et al. 2018):²⁹

- For the *demographic* subgroups, we report impacts on the confirmatory outcomes (educational progress and earnings).
- For the *policy-relevant* subgroups—those defined by enrollment in training, educational attainment, barriers to school/work, and employment, all at baseline—we report impacts on

²⁸ For ease of interpretation, this chapter's policy-relevant subgroups are defined by two groups. Appendix F reports results for four education-defined subgroups and for three barriers-defined subgroups. Appendix F also reports impacts for the subgroups defined by expectations for participating in HPOG full-time or part-time. We do not report these subgroups results in this chapter because the association between *expectations* for participating in HPOG full-time (or part-time) and *actual* participation in HPOG (be it full-time or part-time) is very weak. As a consequence, the results do not shed light on the question of whether actually participating full- versus part-time has differential impacts.

²⁹ As a result, we do not include an Overview of Outcome Measures textbox in this chapter. All outcomes that appear in this chapter also appear—and have been defined—in prior chapters.

confirmatory and secondary outcomes. These subgroups are labelled “policy-relevant” because any differential impact could have implications for changes in program design, implementation, or policy. For instance, a program could choose to target people with more or less education if the program appears to have larger impacts for that group.

- For the subgroup defined by *baseline public assistance use* (i.e., receiving TANF, SNAP or WIC), we report impacts on confirmatory and secondary outcomes, as well as on those exploratory outcomes related to public assistance status at follow-up three years after randomization. This subgroup directly identifies a key HPOG target population as reflected in the FOA: TANF recipients.

Understanding Subgroup Impacts

Whereas prior chapters reported the overall impact of HPOG, this chapter focuses specifically on HPOG's impacts for subgroups. Broadly, we use the term *subgroup* to mean a subset of study participants who share some individual characteristic at baseline, as defined in the table below.

Subgroup Type	Subgroup Comparisons	
Demographic	Race/Ethnicity:	Hispanic/Latino vs. Black, non-Hispanic vs. White, non-Hispanic
	Age:	Less than 25 years vs. 25 years or older
	Dependent children:	No dependent children vs. One or more dependent children
Policy-Relevant	Enrollment in training:	Enrolled vs. Not enrolled
	Educational attainment:	Some postsecondary or more vs. High school education or less
	Barriers to school/work:	No barriers vs. One or more barriers
	Employment:	Employed vs. Not employed
Public Assistance	Public assistance status:	TANF vs. SNAP/WIC only vs. No assistance

We estimate impacts within each subgroup—e.g., the impact for educational progress on those younger than age 25—as well as differences in impacts across subgroups—e.g., the difference in impacts for educational progress between those younger than age 25 and those older than age 25.

This chapter focuses on estimates of *between-subgroup* differential impacts. Although we report *within* subgroup impacts in exhibits, we do not focus on discussing these results because slicing the sample into subgroups reduces the ability to detect statistically significant impacts. This implies that, although the overall effect might be statistically significant, the impact might not be statistically significant within any one subgroup simply by virtue of the reduced sample size. Instead, we do focus on subgroup impacts when one subgroup's impacts are statistically different from its complementary subgroup's impacts.

Consistent with this strategy, tables in this chapter include an additional column that reports statistical significance for two-sided tests of differences in impacts. These results appear in the right-most column of the tables, as in the example below. The sample exhibit shows an impact of 8 percentage points on educational progress for those already enrolled in training at baseline and an impact of 15 percentage points for those not already enrolled at baseline. The right-most column indicates that the difference in impacts of 7 percentage points is statistically significantly different from zero. Because that difference is flagged as statistically significant, our discussion notes that there are differences in impacts for this subgroup, although we do not discuss the within-subgroup-specific impacts. Note that all differential impacts are assessed at the 10 percent level and denoted by daggers (additional details on the subgroup estimates and associated statistics are available in Appendix F for interested readers).

Sample Exhibit: Impacts on Educational Progress by School Enrollment at Baseline

Outcome	Treatment Group Mean	Control Group Mean	Impact	Treatment Group Mean	Control Group Mean	Impact	Difference in Impacts
	Enrolled (27% of sample)			Not Enrolled (73% of sample)			
Completed training (%) ^a	84.5	76.8	7.7***	72.9	57.9	15.0***	-7.3 [†]

Notes: Statistical significance levels for two-sided tests are indicated as follows: *** = 1 percent; ** = 5 percent; * = 10 percent. Statistical significance levels for two-sided tests of differences in impacts across subgroups are indicated as follows: [†] = 10 percent.

Sample Sizes and Sources:

^a Treatment: 6,027. Control: 3,305. Three-year survey.

Exhibit 6.1: Impacts on Educational Progress by Demographic Subgroup

Outcome	Treatment Group Mean	Control Group Mean	Impact	Treatment Group Mean	Control Group Mean	Impact	Treatment Group Mean	Control Group Mean	Impact	Difference in Impacts		
<i>Race/Ethnicity</i>	<i>Hispanic/Latino (24% of sample)</i>			<i>Black, non-Hispanic (34% of sample)</i>			<i>White, non-Hispanic (42% of sample)</i>			<i>Hispanic vs. Black</i>	<i>Black vs. White</i>	<i>Hispanic vs. White</i>
Completed training (%)	71.5	57.1	14.4***	73.3	60.9	12.4***	79.3	68.2	11.1***	2.0	1.3	3.2
Average quarterly earnings during the 12th and 13th quarters (\$)	4,506	4,633	-127	4,908	4,749	159	5,445	5,408	37	-285	122	-163
<i>Age</i>	<i>Less Than 25 Years (32% of sample)</i>			<i>25 Years or Older (68% of sample)</i>						<i>Less Than 25 Years vs. 25 Years or Older</i>		
Completed training (%)	71.8	59.0	12.8***	76.6	64.3	12.3***				0.5		
Average quarterly earnings during the 12th and 13th quarters (\$)	4,750	4,710	39	5,162	5,123	39				1		
<i>Dependent Children</i>	<i>No Dependent Children (37% of sample)</i>			<i>One or More Dependent Children (63% of sample)</i>						<i>No Dependent Children vs. One or More Dependent Children</i>		
Completed training (%)	74.6	64.2	10.4***	75.6	62.0	13.7***				-3.3 [†]		
Average quarterly earnings during the 12th and 13th quarters (\$)	5,065	5,005	61	5,023	4,992	30				30		

Notes: Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Statistical significance levels for two-sided tests of differences in impacts across subgroups are indicated as follows: [†] = 10 percent.

Sample Sizes and Sources:

^a Treatment: 6,027. Control: 3,305. Three-year survey.

^b Treatment: 8,672. Control: 5,044. National Directory of New Hires.

6.1 Demographic Subgroups

- **Educational progress and earnings impacts were mostly the same across demographic subgroups. However, HPOG increased educational progress relatively more for study participants who reported having dependent children at baseline.**

The overall, pooled impact on educational progress of 13 percentage points (see Exhibit 3.1) reflects the impacts that subgroups experienced. As shown in Exhibit 6.1, the analysis finds little or no evidence of between-subgroup differences in impacts three years after randomization. The exception is the subgroup defined by presence of dependent children, where those study participants who reported having dependent children at baseline experienced a larger impact on educational progress than those with no dependent children at baseline (14 percentage points versus 10 percentage points).

The results indicate that HPOG is effective at increasing educational progress for a wide variety of people, regardless of their race/ethnicity, age, or parental status. Similarly, none of these demographic groups showed any greater or lesser impacts on earnings three years after randomization, also in line with the analysis's overall estimated impact.

6.2 Policy-Relevant Subgroups

- **Across all policy-relevant subgroups, HPOG's educational progress impacts were larger for those who came to the program seemingly less prepared to participate in a program like HPOG.**

As shown in Exhibit 6.2, across all of the policy-relevant subgroups we examined, impacts on training completion were consistently larger for those who came into HPOG seemingly less prepared to participate in a program like HPOG. Those who were not already enrolled in training, had a high school education or less, had some barriers to school or work, or were not employed all experienced relatively larger impacts on training completion than did their more prepared counterparts. Differences in impacts varied across subgroups, from about 5 to 7 percentage points. The impacts for the more-prepared subgroups are one half to two thirds the size of the impacts for the less-prepared subgroups.

Exhibit 6.2: Impacts on Educational Progress by Selected Policy-Relevant Subgroups

Outcome	Treatment Group Mean	Control Group Mean	Impact	Treatment Group Mean	Control Group Mean	Impact	Difference in Impacts
<i>Enrolled (27% of sample)</i>				<i>Not Enrolled (73% of sample)</i>			
Training completion (%) ^a	84.5	76.8	7.7***	72.9	57.9	15.0***	-7.3 [†]
Confidence in career knowledge (range is 1 to 4) ^b	3.50	3.49	0.01	3.36	3.33	0.03*	-0.02
<i>Some Postsecondary or More (55% of sample)</i>				<i>High School Education or Less (45% of sample)</i>			
Training completion (%) ^c	82.3	71.9	10.4***	66.6	51.3	15.3***	-4.8 [†]
Confidence in career knowledge (range is 1 to 4) ^d	3.45	3.42	0.03**	3.34	3.32	0.02	0.01
<i>No Barriers (65% of sample)</i>				<i>One or More Barriers (35% of sample)</i>			
Training completion (%) ^c	75.6	64.6	11.0***	74.7	59.0	15.6***	-4.6 [†]
Confidence in career knowledge (range is 1 to 4) ^d	3.42	3.41	0.01	3.36	3.31	0.05**	-0.04
<i>Employed (43% of sample)</i>				<i>Not Employed (57% of sample)</i>			
Training completion (%) ^c	77.3	68.3	9.0***	74.0	58.6	15.4***	-6.4 [†]
Confidence in career knowledge (range is 1 to 4) ^d	3.42	3.41	0.02	3.39	3.35	0.04**	-0.02

Notes: Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent. Statistical significance levels for two-sided tests of differences in impacts across subgroups are indicated as follows: † = 10 percent.

Sample Sizes and Sources:

^a Treatment: 4,894. Control: 2,238. Three-year survey (excluding HPOG/PACE programs).

^b Treatment: 5,264. Control: 2,425. Three-year survey (excluding HPOG/PACE programs).

^c Treatment: 6,027. Control: 3,305. Three-year survey.

^d Treatment: 6,476. Control: 3,551. Three-year survey.

- **HPOG improved selected labor market outcomes more for those who were relatively more prepared at study entry for a program like HPOG—those who entered with at least some postsecondary education and those with no barriers to school or work.**

Unlike the finding on educational progress (that impacts were consistently larger for those participants who entered seemingly *less* prepared), for two labor market outcomes there is evidence of differential impacts in the other direction—larger impacts for those seemingly *more* prepared at baseline to participate in a program like HPOG, as shown in Exhibit 6.3.

For those who entered with at least some postsecondary education, earnings impacts were \$303 larger during the 12th and 13th quarters than for those who entered with a high school education or less. For those who entered with no barriers to school or work, employment impacts in the 12th or 13th quarter were more favorable, an improvement of 3 percentage points relative to those who entered with one or more barriers. There were no differences in impacts across subgroups for employment in healthcare or jobs offering health insurance.

Exhibit 6.3: Impacts on Labor Market Outcomes by Selected Policy-Relevant Subgroups

Outcome	Treatment Group Mean	Control Group Mean	Impact	Treatment Group Mean	Control Group Mean	Impact	Difference in Impacts
<i>Enrolled (27% of sample)</i>			<i>Not Enrolled (73% of sample)</i>				
Average quarterly earnings during the 12th and 13th quarters (\$) ^a	6,769	6,730	39	4,767	4,625	142	-103
Employment in 12th or 13th quarter (%) ^a	86.6	85.9	0.6	83.2	81.1	2.1**	-1.5
Current or most recent job is in healthcare (%) ^b	67.8	57.5	10.3***	54.0	41.1	12.9***	-2.7
Current or most recent job offers health insurance (%) ^b	68.0	65.4	2.5	58.9	57.0	1.9	0.6
Training completion and earnings growth (%) ^c	56.2	52.0	4.2	39.1	31.4	7.7***	-3.5
<i>Some Postsecondary or More (55% of sample)</i>			<i>High School Education or Less (45% of sample)</i>				
Average quarterly earnings during the 12th and 13th quarters (\$) ^d	5,685	5,505	180*	4,287	4,410	-123	303 ⁺
Employment in 12th or 13th quarter (%) ^d	82.0	80.9	1.1	81.9	81.1	0.8	0.3
Current or most recent job is in healthcare (%) ^e	58.7	46.0	12.7***	51.6	41.2	10.4***	2.3
Current or most recent job offers health insurance (%) ^e	59.2	56.7	2.5*	57.7	55.5	2.1	0.4
Training completion and earnings growth (%) ^f	47.6	41.5	6.1***	37.3	29.3	8.0***	-1.9
<i>No Barriers (65% of sample)</i>			<i>One or More Barriers (35% of sample)</i>				
Average quarterly earnings during the 12th and 13th quarters (\$) ^d	5,303	5,188	115	4,532	4,659	-127	242
Employment in 12th or 13th quarter (%) ^d	83.5	81.6	1.9**	78.8	79.8	-1.0	2.9 ⁺
Current or most recent job is in healthcare (%) ^e	56.0	44.2	11.7***	54.7	43.1	11.5***	0.2
Current or most recent job offers health insurance (%) ^e	59.6	57.7	2.0	56.3	53.2	3.2*	-1.2
Training completion and earnings growth (%) ^f	43.7	37.4	6.3***	41.6	33.6	8.0***	-1.7
<i>Employed (43% of sample)</i>			<i>Not Employed (57% of sample)</i>				
Average quarterly earnings during the 12th and 13th quarters (\$) ^d	6,079	5,953	125	4,304	4,315	-11	136
Employment in 12th or 13th quarter (%) ^d	89.0	88.4	0.6	77.0	75.7	1.3	-0.7
Current or most recent job is in healthcare (%) ^e	64.2	52.7	11.5***	49.3	37.3	12.0***	-0.5
Current or most recent job offers health insurance (%) ^e	66.0	62.9	3.1*	53.0	51.1	1.9	1.2
Training completion and earnings growth (%) ^f	46.6	41.1	5.5***	40.3	32.3	8.0***	-2.5

Notes: Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent. Statistical significance levels for two-sided tests of differences in impacts across subgroups are indicated as follows: ⁺ = 10 percent.

Sample Sizes and Sources:

^a Treatment: 7,115. Control: 3,501. National Directory of New Hires (excluding HPOG/PACE programs).

^b Treatment: 4,894. Control: 2,238. Three-year survey (excluding HPOG/PACE programs).

^c Treatment: 4,894. Control: 2,238. National Directory of New Hires and three-year survey (excluding HPOG/PACE programs).

^d Treatment: 8,672. Control: 5,044. National Directory of New Hires.

^e Treatment: 6,027. Control: 3,305. Three-year survey.

^f Treatment: 6,027. Control: 3,305. National Directory of New Hires and three-year survey.

- **HPOG increased individual receipt of public assistance more for those who were enrolled in training at baseline and those who entered with a high school education or less.**

We found differential subgroup impacts on public assistance receipt for two of the four policy-relevant category subgroups: those defined by enrollment in training at baseline and by education at baseline (Exhibit 6.4). Those who were enrolled at baseline had impacts on receipt of public assistance that were 6 percentage points larger than did those who were not enrolled. Those who came into the study with a high school education or less had impacts on receipt of public assistance that were 4 percentage points larger than those who entered with some postsecondary education or more.

Chapter 5 discussed the extent to which impacts on receipt of public assistance were driven by receipt of Medicaid. Exhibit 6.4 shows that both Medicaid and SNAP, and not TANF, seem to be the drivers of these differential subgroup impacts on public assistance receipt.

Exhibit 6.4: Impacts on General Well-Being by Selected Policy-Relevant Subgroups

Outcome	Treatment Group Mean	Control Group Mean	Impact	Treatment Group Mean	Control Group Mean	Impact	Difference in Impacts
	<i>Enrolled (27% of sample)</i>			<i>Not Enrolled (73% of sample)</i>			
Individual receipt of TANF, SNAP, or Medicaid in prior month (%) ^a	35.0	29.4	5.6***	52.4	52.7	-0.4	6.0 [†]
Individual receipt of TANF (%) ^a	3.1	2.8	0.2	6.6	7.7	-1.1	-1.3
Individual receipt of SNAP (%) ^a	22.2	17.4	4.8***	37.5	39.2	-1.7	6.5 [†]
Individual receipt of Medicaid (%) ^a	29.7	25.0	4.6**	43.0	42.6	0.4	4.2
Participant reports generally not having enough money to make ends meet at the end of the month (%) ^a	18.1	20.6	-2.5	26.4	29.4	-3.0**	0.5
	<i>Some Postsecondary or More (55% of sample)</i>			<i>High School Education or Less (45% of sample)</i>			
Individual receipt of TANF, SNAP, or Medicaid in prior month (%) ^b	41.2	41.7	-0.5	55.5	52.0	3.5***	-4.0 [†]
Individual receipt of TANF (%) ^b	4.6	5.3	-0.8*	6.9	7.7	-0.8	0.0
Individual receipt of SNAP (%) ^b	28.2	29.2	-1.0	40.9	39.5	1.3	-2.3 [†]
Individual receipt of Medicaid (%) ^b	32.2	31.7	0.4	43.2	39.6	3.6***	-3.2 [†]
Participant reports generally not having enough money to make ends meet at the end of the month (%) ^b	23.4	26.3	-2.9***	25.0	28.5	-3.5***	0.6
	<i>No Barriers (65% of sample)</i>			<i>One or More Barriers (35% of sample)</i>			
Individual receipt of TANF, SNAP, or Medicaid in prior month (%) ^b	43.8	43.1	0.6	54.8	51.9	3.0*	-2.4
Individual receipt of TANF (%) ^b	5.2	5.8	-0.6	6.4	7.4	-1.1	0.5
Individual receipt of SNAP (%) ^b	30.0	30.1	-0.1	41.1	40.3	0.8	-0.9
Individual receipt of Medicaid (%) ^b	34.6	33.0	1.6	41.8	39.0	2.8*	-1.2
Participant reports generally not having enough money to make ends meet at the end of the month (%) ^b	22.1	25.1	-3.1**	27.9	31.0	-3.1*	0.0

Outcome	Treatment Group Mean	Control Group Mean	Impact	Treatment Group Mean	Control Group Mean	Impact	Difference in Impacts
	<i>Employed (43% of sample)</i>			<i>Not Employed (57% of sample)</i>			
Individual receipt of TANF, SNAP, or Medicaid in prior month (%) ^b	39.7	39.4	0.3	53.5	51.5	2.1	-1.7
Individual receipt of TANF (%) ^b	3.3	5.0	-1.7**	7.4	7.5	-0.1	-1.6
Individual receipt of SNAP (%) ^b	27.5	26.5	1.1	38.6	39.3	-0.7	1.8
Individual receipt of Medicaid (%) ^b	30.4	30.4	-0.0	42.3	38.9	3.5***	3.5 ⁺
Participant reports generally not having enough money to make ends meet at the end of the month (%) ^b	20.5	22.6	-2.2*	26.8	30.7	-3.9***	1.8

Notes: Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent. Statistical significance levels for two-sided tests of differences in impacts across subgroups are indicated as follows: † = 10 percent.

Sample Sizes and Sources:

^a Treatment: 5,264. Control: 2,425. Three-year survey (excluding HPOG/PACE programs).

^b Treatment: 6,476. Control: 3,551. Three-year survey.

6.3 Baseline Public Assistance Status-Defined Subgroups

This final section of this chapter examines impacts three years after randomization for subgroups defined by their public assistance status at baseline. We use a three-way classification: (1) individuals who were receiving TANF; (2) those who were receiving SNAP or WIC but not TANF; and (3) those who were not receiving SNAP, WIC, or TANF (“no assistance”).³⁰ Nearly all of the individuals receiving TANF at baseline were also receiving SNAP. Within the study sample, these three subgroups represent 12 percent (TANF), 46 percent (SNAP/WIC only), and 42 percent (no assistance), respectively.

- **All three subgroups made educational progress; those receiving only SNAP/WIC at baseline made more progress than those receiving no public assistance at baseline.**

Exhibit 6.5 shows the results for the public assistance status-defined subgroups. The impact for the SNAP/WIC group was 7 percentage points greater than for the no assistance group. The differences in impacts between the TANF and SNAP/WIC groups and the TANF and no assistance groups were not distinguishable from zero.

- **There were no differences in labor market outcomes across subgroups defined by public assistance status at baseline.**

There were no detectable between-group differences for any of the labor market outcomes for any of the three groups. The findings for subgroups defined by public assistance status at baseline are consistent with the overall findings from the preceding chapters—a small increase in employment, larger increases in employment in healthcare, and no impact on earnings. This implies that HPOG is no more or less effective for any one of these groups in terms of their labor market outcomes.

³⁰ These group classifications are defined based on participation in TANF, SNAP, or WIC at baseline. Participants, including those in the “no assistance” subgroup, might be receiving other public benefits such as Medicaid, housing aid, or Unemployment Insurance.

- **HPOG's impacts on receipt of TANF, SNAP, or Medicaid varied for subgroups defined by baseline public assistance status.**

As shown in Exhibit 6.5, treatment group members who received only SNAP/WIC at baseline experienced a reduction of 2 percentage points in personal receipt of TANF at three years after randomization. This impact differed from those who did not receive any assistance at baseline. Receipt of SNAP was also lower for those who received only SNAP/WIC at baseline, as compared to either those receiving TANF at baseline or those receiving no assistance at baseline.

HPOG increased receipt of public assistance, specifically Medicaid, for those individuals who were receiving TANF at baseline. This impact differed from the impact for those who were receiving only SNAP/WIC at baseline or those not receiving any assistance at baseline.

Exhibit 6.5: Impacts by Public Assistance Status-Defined Subgroups

Outcome	Treatment Group Mean	Control Group Mean	Impact	Treatment Group Mean	Control Group Mean	Impact	Treatment Group Mean	Control Group Mean	Impact	Difference in Impacts		
<i>Educational Progress Outcomes</i>	<i>TANF (12% of sample)</i>			<i>SNAP/WIC (48% of sample)</i>			<i>No Assistance (41% of sample)</i>			<i>TANF vs. None</i>	<i>TANF vs. SNAP/WIC</i>	<i>SNAP/WIC vs. None</i>
Training completion (%) ^a	73.1	60.1	13.0***	74.1	58.4	15.7***	77.8	69.2	8.6***	4.4	-2.7	7.1 [†]
Confidence in career knowledge (range is 1 to 4) ^b	3.39	3.36	0.03	3.40	3.36	0.04**	3.41	3.39	0.02	0.01	-0.01	0.02
<i>Labor Market Outcomes</i>	<i>TANF (12% of sample)</i>			<i>SNAP/WIC (48% of sample)</i>			<i>No Assistance (41% of sample)</i>			<i>TANF vs. None</i>	<i>TANF vs. SNAP/WIC</i>	<i>SNAP/WIC vs. None</i>
Average quarterly earnings during the 12th and 13th quarters (\$) ^c	3,856	3,969	-113	4,538	4,548	-11	5,980	5,830	150	-264	-102	-161
Employment in 12th or 13th quarter (%) ^c	79.6	77.2	2.4	79.7	80.0	-0.3	85.3	83.3	2.0*	0.4	2.7	-2.3
Current or most recent job is in healthcare (%) ^a	51.6	40.2	11.4***	54.2	41.2	13.0***	58.5	48.6	9.9***	1.5	-1.6	3.2
Current or most recent job offers health insurance (%) ^a	53.2	51.8	1.4	56.7	55.2	1.5	62.0	58.9	3.1*	-1.7	-0.2	-1.6
Training completion and earnings growth (%) ^d	39.7	34.2	5.5*	41.1	32.5	8.6***	46.5	41.1	5.4***	0.0	-3.1	3.2
<i>General Well-Being Outcomes</i>	<i>TANF (12% of sample)</i>			<i>SNAP/WIC (48% of sample)</i>			<i>No Assistance (41% of sample)</i>			<i>TANF vs. None</i>	<i>TANF vs. SNAP/WIC</i>	<i>SNAP/WIC vs. None</i>
Individual receipt of TANF, SNAP, or Medicaid in prior month (%) ^b	76.0	70.5	5.5**	57.1	57.7	-0.5	26.4	24.5	1.9	3.6	6.0 [†]	-2.4
Individual receipt of TANF (%) ^b	17.8	17.9	-0.2	5.2	6.9	-1.7**	2.0	2.1	-0.1	-0.1	1.5	-1.6 [†]
Individual receipt of SNAP (%) ^b	62.5	59.0	3.5	42.8	44.6	-1.8	13.4	12.3	1.1	2.5	5.4 [†]	-2.9 [†]
Individual receipt of Medicaid (%) ^b	59.9	51.3	8.6***	43.9	43.1	0.8	21.4	20.3	1.1	7.5 [†]	7.8 [†]	-0.3
Participant reports generally not having enough money to make ends meet at the end of the month (%) ^b	33.5	38.8	-5.3**	27.4	31.4	-4.1***	16.9	18.4	-1.6	-3.7	-1.2	-2.5

Notes: Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Statistical significance levels for two-sided tests of differences in impacts across subgroups are indicated as follows: [†] = 10 percent.

Sample Sizes and Sources:

^a Treatment: 6,027. Control: 3,305. Three-year survey.

^b Treatment: 6,476. Control: 3,551. Three-year survey.

^c Treatment: 8,672. Control: 5,044. National Directory of New Hires.

^d Treatment: 6,027. Control: 3,305. National Directory of New Hires and three-year survey.

6.4 Summary

This chapter has examined impact variation on confirmatory and secondary outcomes for subgroups in three categories: demographic, policy-relevant, and public assistance status-defined. There is no clear pattern regarding which subgroups fare relatively better or worse. That is, both more and less prepared subgroups fare relatively better in some circumstances, on some outcomes. For an alternative perspective, summarizing the evidence of impact variation for a given outcome across the three categories reveals some patterns of policy interest.

6.4.1 Educational Progress Subgroup Differential Impacts

For all policy-relevant subgroups, HPOG had a larger impact on training completion for the subgroups that might be considered to be less prepared for a program like HPOG at baseline. For example, those with some postsecondary education or more might be perceived as being more prepared to engage in additional postsecondary training relative to those with a high school education or less, who might require additional, remedial preparation in order to take advantage of HPOG's training offerings. Despite this characterization, in terms of educational progress, it is the less-prepared subgroups that appear to benefit more from HPOG than they would have otherwise, relative to their control group counterparts. Impacts on training completion were also larger for those who entered HPOG receiving SNAP/WIC versus those who came into the program receiving no public assistance.

These findings about differential educational progress impacts—that they favor some less prepared subgroups—might arise for programmatic reasons. That is, it could be something that the local HPOG programs *did* to ensure that those with less education, for example, could meaningfully benefit. These findings might also arise as a function of the control group's conditions and experiences. That is, in the absence of HPOG, control subgroups might have particularly poorer outcomes. The combination of these two forces might explain the differential educational progress impacts: the local HPOG programs' offerings might facilitate disproportionate improvements within the less-prepared portion of its target population, *and* absent treatment, the control subgroups' outcomes might be poorer.

6.4.2 Labor Market Subgroup Differential Impacts

Three years after random assignment, we also observe differential impacts for some subgroups in their employment and earnings. Concerning labor market outcomes, there is some evidence that those who enrolled in training with relatively greater education and without barriers to school or work fared relatively better. Those with more education had greater *earnings* impacts; and those with no barriers had greater *employment* impacts.

6.4.3 Additional Exploration of Subgroup Differential Impacts

To further explore these findings, we first analyzed subgroup findings for the four measures that make up training completion. Then, given those results, we examined the duration of trainings for selected subgroups (see Appendix F). The rationale for these analyses stems from heterogeneity in the HPOG sample. Some treatment group members enroll in short-term trainings, and it is our conjecture that those trainings are associated with lower-rung, lower-quality jobs, even if in the healthcare sector. In comparison, other treatment group members enroll in longer-term trainings, which more likely lead to *better* healthcare sector jobs. If these are two dominant paths within HPOG, then they might create offsetting earnings impacts: some

participants might fare worse and others might fare better as a result of their HPOG experiences. If these two effects are offsetting, that might explain the evaluation's net impact of only \$42 (not distinguishable from zero) in quarterly earnings after three years (see Exhibit 4.1), despite the larger share of treatment group members working in the healthcare sector.

We used the education-defined subgroup to explore the extent to which there is evidence to support this conjecture. In brief, the analysis reveals differential impacts for completion of short-term training, but fewer differentials for completion of longer-term training as of the three-year follow-up. Of note, we observe an impact differential in completion of a certificate or degree requiring one or more years of college that favors the subgroup defined by greater baseline education—the same subgroup where we observe an earnings differential. This finding is consistent with our conjecture that those who complete longer-term training might find higher-wage jobs in the healthcare sector. We further explore this conjecture from a descriptive perspective in Chapter 8.

The next chapter focuses on impacts within a particular subset of the sample—parents who had dependent children at baseline—and explores the extent to which there were impacts of HPOG for outcomes related to child development and well-being.

7. Impacts on Child Development & Well-Being

Summary of Key Findings: Child Development and Well-Being

- Impacts on the subset of the HPOG sample who were parents at baseline are similar to impacts for the full sample. HPOG improved outcomes in training completion, employment in healthcare, job quality, and career progress within the subset of the sample who were parents at baseline.
- HPOG did not have detectable impacts on our measures of child development or well-being. We do not detect differences between the treatment and control groups in their children's educational aspirations, socioemotional development, academic skills, or school-related risks.

Programs such as HPOG may improve outcomes not only for participants, but also for their children. Given the differential educational progress impacts for participants with children (Exhibit 6.1), we focus here on whether those impacts translate to children. Impacts on children might arise in multiple ways. Added resources in the household may lead to improved child well-being. Children's outcomes might improve from their having role models in their parents' pursuit of more education and better work opportunities. However, if increasing parents' work means that they are less able to supervise their children during afterschool hours, then it is possible that children's well-being might decline. All three of these hypotheses—resources, role models, supervision—have been observed in prior research (Duncan, Morris, and Rodrigues 2011; Gennetian et al. 2002; Morris, Gennetian, and Duncan 2005).

This chapter first discusses the impact of HPOG on parents and then turns to impacts on children's outcomes. At baseline, 63 percent of the HPOG sample (treatment and control) had one or more dependent children; 84 percent were unmarried and 89 percent were female.

7.1 Child Development and Well-Being Sample

In this chapter, we investigate HPOG's impact on children, focusing on preschool through high school age at follow-up. We focus on this age range because it excludes children who were born after random assignment, and it includes children who might plausibly be affected by their parents' participation in HPOG during this follow-up period. We further restrict attention to parents who at baseline:

- had legal custody of the child at least half-time; and
- had provided basic identifying information for the child on the household roster collected through the study's baseline survey.

The parents examined in this analysis are those who had dependent children at baseline; and only the children who were part of the family at baseline are eligible to be the focus of the follow-up survey questions about children. Any children added to the sample members' families after

random assignment are not part of this analysis, and the analysis does not consider changes to family composition that might be attributed to HPOG.³¹

For each parent of eligible children, the evaluation randomly selected a single focal child, and the questions in the follow-up survey's child module asked specifically about this child. Asking questions about a specific child produces higher-quality data than asking about children generally. Although we could have duplicated the child module to gather data about multiple children, we ask the parents to answer for only one child, to limit the burden of the survey. Because we chose the focal child randomly for each household, the analyses are representative of all eligible children.³²

Of the full baseline sample of 10,693 study participants in the HPOG-only programs, 5,966 were parents of one or more eligible children. The evaluation selected a single focal child for each of these parents. At the three-year follow-up, a total of 4,351 parents of focal children responded to the survey (73 percent of the parents of focal children) and were screened for the survey's child module. Of these, 1,044 were ineligible to participate in the module: 708 parents did not have a child whose name and date of birth matched the selected focal child, 237 parents did not live with the child at least half-time, and 99 parents were ineligible for other reasons. Therefore, the survey collected data on 3,307 focal children.

Because socioemotional and academic development vary by age and grade level, outcome measurement also varies across the following subsamples: preschool-age children, kindergarten through grade 5, and grades 6 through 12. Exhibit 7.1 gives the criteria used to define subsamples of parents who were asked tailored survey questions, the typical age range and sample sizes for the full child sample (top row), and the same for the age/grade-specific subsamples.

As a result, the child development and well-being sample is much smaller than the overall sample, particularly for age/grade specific analyses. For example, there are only 750 preschool-age children. This reduction in sample size reduces statistical power, potentially limiting our ability to detect a true impact.

³¹ The sample of parents in Chapter 7 differs from the sample of study participants with "one or more dependent children" in Chapter 6. In Chapter 6, the sample with one or more dependent children includes all study participants who reported having a child at baseline. In Chapter 7, the parent sample only includes parents who had at least one child selected to be the focus of follow-up survey questions. Most notably, the selection of focal children in HPOG/PACE programs was different than the selection in HPOG-only programs, so we excluded children from the HPOG/PACE programs from the survey sample (therefore, those parents were excluded from the parent subsample). We also excluded parents who did not provide sufficient identifying information for their children to ask the follow-up survey questions.

³² We include weights in the analysis to adjust for the frame from which children were selected. This frame incorporates the number of children in the household.

Exhibit 7.1: Child Development and Well-Being Sample

Sample	Criteria	Typical Age Range at Follow-Up	Sample Size: Treatment	Sample Size: Control	Sample Size: Total
Full child sample (children of all grades/ages)	Expected to be of preschool age or enrolled in school (kindergarten to grade 12) at the three-year follow-up, where the expected date of high school graduation was calculated from the child's date of birth collected at baseline In parent's legal custody at least half-time (at baseline and at time of three-year survey)	3 to 18	2,269	1,038	3,307
Preschool age	Not yet enrolled in kindergarten	3 to 5	521	229	750
Grades K-5	Enrolled in kindergarten to grade 5 at follow-up	5 to 11	1,009	463	1,472
Grades 6-12	Enrolled in grade 6 to grade 12 at follow-up	11 to 18	718	327	1,045

Notes: Typical Age Range at Follow-Up gives the 5th and 95th percentile of the age distribution, rounded to the nearest year. Surveys conducted in the summer asked about enrollment and school experiences in the previous school year. Age/grade-specific outcomes are unavailable for 40 children whose parents provided invalid information on enrollment grade.

Overview of Outcome Measures: Child Development and Well-Being

The outcomes in this chapter are based on parent response to the three-year survey. The three-year survey asked certain questions only of parents with children in particular grade ranges (those ranges are noted in the table below). All outcomes in this chapter are exploratory.

Outcome	Grade Range	Variable Description
Parent believes child will complete some education beyond high school (%)	All	Indicator equals 1 if parent expects the child to do one of the following: <ul style="list-style-type: none"> Complete some technical school after high school Finish technical school after high school Complete some college Finish college Earn an advanced degree Indicator equals 0 if parent expects the child to do one of the following: <ul style="list-style-type: none"> Complete some high school Finish high school
Child believes s/he will complete some education beyond high school (%)	All	Indicator equals 1 if parent reports the child expects to do one of the following: <ul style="list-style-type: none"> Complete some technical school after high school Finish technical school after high school Complete some college Finish college Earn an advanced degree Indicator equals 0 if parent reports the child expects to do one of the following: <ul style="list-style-type: none"> Complete some high school Finish high school

7. IMPACTS ON CHILD DEVELOPMENT & WELL-BEING

Child development of socioemotional skills (range is -2 to 2)	preschool-5	Six-item scale measuring socioemotional skills, constructed by averaging across the following items. Parent rates the child as far below average (-2), below average (-1), about average (0), above average (1), or far above average (2) on: <ul style="list-style-type: none"> • Ability to follow direction • Ability to make new friends • Ability to wait his/her turn in games or activities • Acting his/her age • Ability to concentrate or pay attention • Ability to control his/her temper
Child development of academic skills (range is -2 to 2)	preschool only	Three-item scale measuring academic skills, constructed by averaging across the following items. Parent rates the child as far below average (-2), below average (-1), about average (0), above average (1), or far above average (2) on: <ul style="list-style-type: none"> • Ability to express themselves verbally • Early reading skills • Skills with math or numbers
Child development of academic skills (range is -2 to 2)	K-5	Two-item scale measuring academic skills, constructed by averaging across the following items. Parent describes teacher reports of the child doing not well at all (-2), below average (-1), about average (0), well (1) or very well (2) on: <ul style="list-style-type: none"> • Reading • Math
Parental perception of student achievement (%)	6-12	Parent reports the child earned mostly A's or mostly A's and B's in school. If school does not give letter grades: parent reports the child was one of the best students in his/her class or above the middle in his/her class
School-related risk (range is 0 to 3)	K-12	Number of school-related risks (academic risk, attendance risk, and behavioral risk), ranging from 0 to 3. Scale reflects the number of domains where risk is present
Academic risk (%)	K-12	Indicates the parent reported at least one of the following: <ul style="list-style-type: none"> • Child has repeated at least one grade in school • In the current or most recent school year, a teacher has contacted an adult in the household about problems with the child's schoolwork
Repeat grade (%)	K-12	Parent reports the child has repeated at least one grade in school
Schoolwork-Teacher contact (%)	K-12	In the current or most recent school year, parent reports a teacher has contacted an adult in the household about problems with the child's schoolwork
Attendance risk (%)	K-12	Indicates the parent reported at least one of the following: <ul style="list-style-type: none"> • Child was absent for more than 2 days in the last month • Child was late for school on more than 2 days in the last month
Absent more than two days last month (%)	K-12	Parent reports the child was absent for more than 2 days in the last month
Late more than two days last month (%)	K-12	Parent reports the child was late for school on more than 2 days in the last month
Behavioral risk (%)	K-12	Indicates the parent reported at least one of the following for the current or most recent school year: <ul style="list-style-type: none"> • A teacher has contacted an adult in the household about the child's behavior problems in school • Child was suspended or expelled from school
Behavior-Teacher contact (%)	K-12	In the current or most recent school year, parent reports a teacher has contacted an adult in the household about the child's behavior problems in school
Suspend/expel in current school year (%)	K-12	In the current or most recent school year, parent reports the child was suspended or expelled from school
Notes: Additional information on the sample, sample sizes, and missing data handling appears in Appendix B.:		

7.2 Impacts on Parents

The logic model suggests that HPOG's impacts on parents might yield impacts on their children. Following this chain of logic, we begin by reporting HPOG's impacts on parents. This analysis only includes parents of focal children.

- **Impacts on parents are similar to impacts for the full sample.**

Exhibit 7.2 presents findings on HPOG's impacts on confirmatory and secondary outcomes for parents of focal children.³³ HPOG increased parents' completion of training but yielded no detectable impact on their average earnings in the 12th-13th quarter after random assignment. Neither was there a detectable impact on their employment; however, HPOG increased employment in healthcare and access to employer-sponsored health insurance for parents.

Exhibit 7.2: Impacts for Child Development and Well-Being Sample

Outcome	Treatment Group Mean	Control Group Mean	Impact	Relative Impact
Educational Progress Outcomes				
Training completion (%) ^a	77.2	61.9	15.4***	24.8
Confidence in career knowledge (range is 1 to 4) ^b	3.42	3.38	0.03	0.93
Labor Market Outcomes				
Average quarterly earnings during the 12th and 13th quarters (\$) ^c	5,163	5,157	6	0.1
Employment in 12th or 13th quarter (%) ^c	85.4	84.1	1.2	1.4
Current or most recent job is in healthcare (%) ^a	61.5	46.8	14.8***	31.6
Current or most recent job offers health insurance (%) ^a	63.9	60.6	3.3*	5.4
Training completion and earnings growth (%) ^d	44.9	36.3	8.6***	23.8
General Well-Being Outcomes				
Individual receipt of TANF, SNAP, or Medicaid in prior month (%) ^b	59.4	58.0	1.4	2.3
Participant reports generally not having enough money to make ends meet at the end of the month (%) ^b	26.3	27.8	-1.5	-5.3

Notes: Career progress reflects a combination of training completion and earnings growth (see Chapter 4 for more information). Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Sample Sizes and Sources:

^a Treatment: 2,080. Control: 951. Three-year survey.

^b Treatment: 2,248. Control: 1,019. Three-year survey.

^c Treatment: 2,248. Control: 1,019. National Directory of New Hires.

^d Treatment: 2,080. Control: 951. National Directory of New Hires and three-year survey.

The introduction to this chapter noted three plausible pathways for a program such as HPOG to influence children's outcomes: household resources, the role modeling of parents, and parental supervision. Without overall impacts on earnings, impacts on child outcomes seem unlikely.

³³ Appendix G includes the full details of the subgroup analysis, comparing impacts for parents of focal children and impacts for other sample members. For several outcomes—confidence in career knowledge, employment, and financial hardship—there are impacts for the overall sample and not for the parents of focal children subsample. This is likely a function of the smaller sample size of the parent subsample decreasing the precision of estimates. The only detectable differential impacts between the parents of focal children and the non-parent subsample are for training completion and healthcare employment (see “Understanding Subgroup Impacts” textbox in Chapter 6).

However, because HPOG parents are in training to a greater degree than their control group counterparts, it is plausible that the role modeling and supervision mechanisms might influence children. The role modeling hypothesis would imply that parents' dedication to education or training would improve children's educational outcomes. However, if parental supervision is particularly important for adolescents, then parents' absence due to additional education, training, or work could imply greater levels of delinquency among older children.

The next section provides evidence on whether any of these mechanisms is strong enough to influence children's development and well-being at the three-year follow-up.

7.3 Impacts on Child Development and Well-Being

- HPOG did not affect child development or well-being.**

We do not detect differences in educational aspirations, socioemotional development, academic skills, or school-related risk between the treatment and control groups (Exhibit 7.3). Across both the treatment and control group, parents report that their child is doing well. Nearly all parents in the full child sample (94 percent) expect their child will complete some education beyond high school. The same proportion of parents report that their child says he or she would like to complete some education beyond high school.

Exhibit 7.3: Impacts on Child Development and Well-Being, for All Children and for Children by Grade Range

Outcome	Sample	Treatment Group Mean	Control Group Mean	Impact	Relative Impact
<i>Educational Aspirations</i>					
Parent believes child will complete some education beyond high school (%) ^a	Full child sample	94.1	94.2	-0.1	-0.1
Child believes s/he will complete some education beyond high school (%) ^a	Full child sample	94.1	94.1	0.1	0.1
<i>Socioemotional Development</i>					
Child development of socioemotional skills (range is -2 to 2) ^b	Preschool -grade 5	0.45	0.43	0.02	4.1
<i>Academic Skills</i>					
Child development of academic skills (range is -2 to 2) ^c	Preschool age	0.43	0.48	-0.05	-11.0
Child development of academic skills (range is -2 to 2) ^d	Grades K-5	0.92	0.90	0.02	1.7
Parental perception of student achievement (%) ^e	Grades 6-12	72.1	76.2	-4.1	-5.4
<i>School Related Risk</i>					
School-related risk (range is 0-3) ^f	Grades K-12	0.66	0.66	0.00	0.5

Notes: Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Sample Sizes and Sources:

^a Treatment: 2,269. Control: 1,038. Three-year survey.

^b Treatment: 1,530. Control: 692. Three-year survey.

^c Treatment: 521. Control: 229. Three-year survey.

^d Treatment: 1,009. Control: 463. Three-year survey.

^e Treatment: 718. Control: 327. Three-year survey.

^f Treatment: 1,727. Control: 790. Three-year survey.

Exhibit 7.3 identifies specific samples from the child development and well-being sample in the second column. Across both treatment and control groups, parents perceive their preschool-grade 5 child to be slightly above average in socioemotional development and development of academic skills.

Next, considering the whole K-12 grade range, the school-related risk score counts the domains where risk is present, with up to one point for each of the following: academic risk, attendance risk, and behavioral risk. The average school-related risk score of 0.66 in Exhibit 7.3 above indicates parents reported risks on average in fewer than one of these areas.

Exhibit 7.4 below shows impacts on the measures and items that make up the school-related risk scale. Among those possible risk factors, parents most commonly reported teacher contact with concerns about the child's schoolwork (20 and 21 percent for the treatment and control group, respectively) and/or about behavior (23 percent). The most severe risks were also the least commonly reported: repeated a grade (6 to 7 percent for the treatment and control group, respectively) or suspension or expulsion in current year (4 percent). There is no evidence of impact on any of the components of school-related risk.

Exhibit 7.4: Impacts on School-Related Risk (Grades K-12)

Outcome	Treatment Group Mean	Control Group Mean	Impact	Relative Impact
Academic risk (%)	24.6	24.8	-0.2	-0.8
Repeat grade (%)	5.8	6.8	-0.9	-13.9
Schoolwork-Teacher contact (%)	21.4	19.7	1.8	9.0
Attendance risk (%)	17.1	17.3	-0.2	-1.0
Absent more than two days last month (%)	11.4	11.4	0.0	0.1
Late more than two days last month (%)	10.0	9.8	0.2	2.2
Behavioral risk (%)	24.6	24.1	0.5	2.2
Behavior-Teacher Contact (%)	23.2	22.9	0.3	1.3
Suspend/expel in current school year (%)	3.7	3.5	0.2	5.8

Notes: Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Sample Sizes and Sources:

Treatment: 1,727. Control: 790. Three-year survey.

7.4 Summary

As discussed previously, the HPOG logic model posits that the training and services provided by HPOG will lead to improved educational and labor market outcomes, which in turn has the potential to influence family and child well-being. We analyze HPOG's impacts on children to investigate the full extent of the logic model, but recognize that the path through which HPOG might influence children's outcomes has many steps and many assumptions are embedded in the connections between each step. Given that we do not observe impacts on earnings or income—the “resources” mechanism through which HPOG might affect child outcomes—we might not expect to see impacts on children. However, the impacts on educational progress could yield “role model” related favorable impacts or “supervision” related unfavorable impacts among children.

In fact, we do not observe any impacts on children, either favorable or unfavorable. Although the overall sample for the HPOG impact study is relatively large (13,716 individuals), the sample for impacts on children is smaller: 44 percent of the total sample was eligible for the child module

according to baseline information, and three-quarters of those who were eligible based on screening questions ultimately responded to the survey. As a result, the full sample for child outcomes is 3,307 individuals, 24 percent of the overall sample for the HPOG impact study. For outcomes measured for specific age groups, the resulting sample sizes are even smaller, ranging from 750 for outcomes measured for preschool age children to 2,517 for outcomes measured for all children enrolled in school (grades K to 12). Smaller sample sizes have lower statistical power, reducing the likelihood of detecting small impacts. Because we would not expect to see large impacts and are unlikely to detect small impacts, it is not surprising that we do not detect impacts on child well-being.

8. Patterns of Training & Employment in the HPOG Treatment Group

Summary of Key Findings: Patterns of Training and Employment

- Treatment group members participated in training mostly in the early months after random assignment. The proportion of participants in training was highest in the first few months and declined steadily thereafter.
- About 16 percent of treatment group survey-respondents enrolled in long-term training, defined as a year or longer. These individuals were more likely to have been enrolled in training or had some postsecondary education or more at baseline.
- Three years after random assignment, 89 percent of those who enrolled in long-term training were employed, earning an average of \$21.00 per hour. In contrast, 75 percent of those who enrolled in short-term training were employed, with an average wage of \$14.50 per hour. More than two thirds of those who enrolled in long-term training and were employed at the three-year follow-up were working as either registered nurses, licensed practical nurses, or licensed vocational nurses; more than two thirds of those who enrolled in short-term training and were employed at the three-year follow-up were working as either Nursing, Psychiatric, or Home Health Aides or in another relatively low-wage occupation.
- There is little evidence of participants returning for a second spell of training. According to the three-year survey, only nine percent of participants participated in training, became employed, and then began a second spell of training. This finding is the same for those who first enrolled in short-term and long-term training.

The third research question for this three-year impact analysis is: *To what extent do the education and employment experiences of HPOG participants over time suggest that they are following a career pathway?*

The career pathways framework originates in the observation that people can build careers by combining training and work, either simultaneously or sequentially, to progress up a career ladder. Combining training and work in such a manner seems particularly likely in the heavily regulated healthcare sector. The FOA states that successful local HPOG programs will “support participants’ advancement along a defined career pathway, such as an articulated career ladder, if such a pathway exists in the healthcare industry... [or develop] such pathways where they do not currently exist” (HHS/ACF/OFA 2010).

To address this third research question, this chapter describes the patterns of training and employment for the HPOG treatment group over the three-year follow-up. The structure of the three-year survey—collecting a complete training, education, and employment history since study entry—allows us to identify these patterns within the survey’s three-year observation window. Using the survey’s history, we construct a month-by-month picture of when a survey respondent was (1) enrolled in training (whether in HPOG or elsewhere), (2) employed, (3) both

enrolled in training and employed, or (4) neither enrolled in training nor employed.³⁴ In the remainder of this chapter, we refer to these four statuses (in italics) as *training*, *employed*, *both*, and *neither*, respectively.³⁵

Throughout this analysis, we focus specifically on the comparison between study members whose first training after random assignment was long-term (we focus exclusively on training for Licensed and Vocational Nurse or Registered Nurse, 16 percent of the sample) versus short-term (all other trainings, 84 percent of the sample).³⁶ Two findings noted in the preceding chapters imply that this comparison is particularly salient. First, in Chapter 4 we noted that it might be useful to think of two possible tracks of training and employment: some short-term trainings lead to low-earnings occupations (e.g., Nursing Assistant), whereas some longer-term trainings lead to better-paying occupations (e.g., Registered Nurse). Second, in Chapter 6 we found that selected subgroups—those with greater education and fewer barriers to school or work at baseline—did have favorable impacts on earnings. This chapter presents analyses that supplement these findings.

The experiences we describe occurred after the point of random assignment into the HPOG 1.0 Impact Study. As such, the experimental design implies that we could classify patterns as outcomes and compare these outcomes in the treatment group to the control group to estimate the impact of HPOG on career patterns. To do so would require us to designate certain patterns as indicative of “career progress” and others not. We hesitate to do so because career progress can have many possible definitions, manifest in many ways, and need not follow any pattern. Instead, we focus only on describing the patterns of treatment group members and remain agnostic about which patterns indicate career progress. Importantly, those patterns reflect a sample who began enrolling in training midway through the five-year HPOG grant period, leaving at most two and a half years during which the earliest enrollees could access the training that was HPOG grant-funded.

This chapter proceeds as follows. We begin by describing the cumulative patterns of movement into training and employment for the treatment group. We then split the treated sample into two groups and focus specifically on patterns of training and employment for those who enrolled in short-term trainings versus those who enrolled in long-term trainings, which correspond to training for Licensed and Vocational Nurses or Registered Nurses and all other trainings, respectively. The observations that follow lead us to conclude that these two subsets of the treatment group have distinct HPOG experiences, in terms of their labor outcomes. Then we describe the most common patterns of training and employment and wage-earning potential for these two groups, considering how these experiences align with the underlying assumptions of the career pathways framework. We close with the implications of these findings for this report.

³⁴ Because the analysis of training and employment patterns relies on the three-year survey, we limit the discussion to survey respondents who did not skip out of the survey, which comprise 69 percent of the study sample’s treatment group (see Appendix B).

³⁵ Those in *neither* are not survey non-respondents; instead, they are respondents who did not report a single training or employment spell in the three years following random assignment.

³⁶ We identify these trainings using administrative data from the PRS.

8.1 Training and Employment Over Time

Exhibit 8.1 shows the movement of the treatment group into training and employment over the three-year follow-up, with specific focus on the moves in the first six months. Consistent with the sample baseline characteristics described in Chapter 1, treatment group members enrolled in HPOG from various baseline statuses (Exhibit 1.2). According to the three-year survey, treatment group respondents recall that at the time of their random assignment:

- 21 percent were *training*;
- 24 percent were *employed*;
- 17 percent were *both*; and
- 38 percent were *neither*.

These percentages correspond to the respondents' status in month 0, on the left side of Exhibit 8.1.³⁷

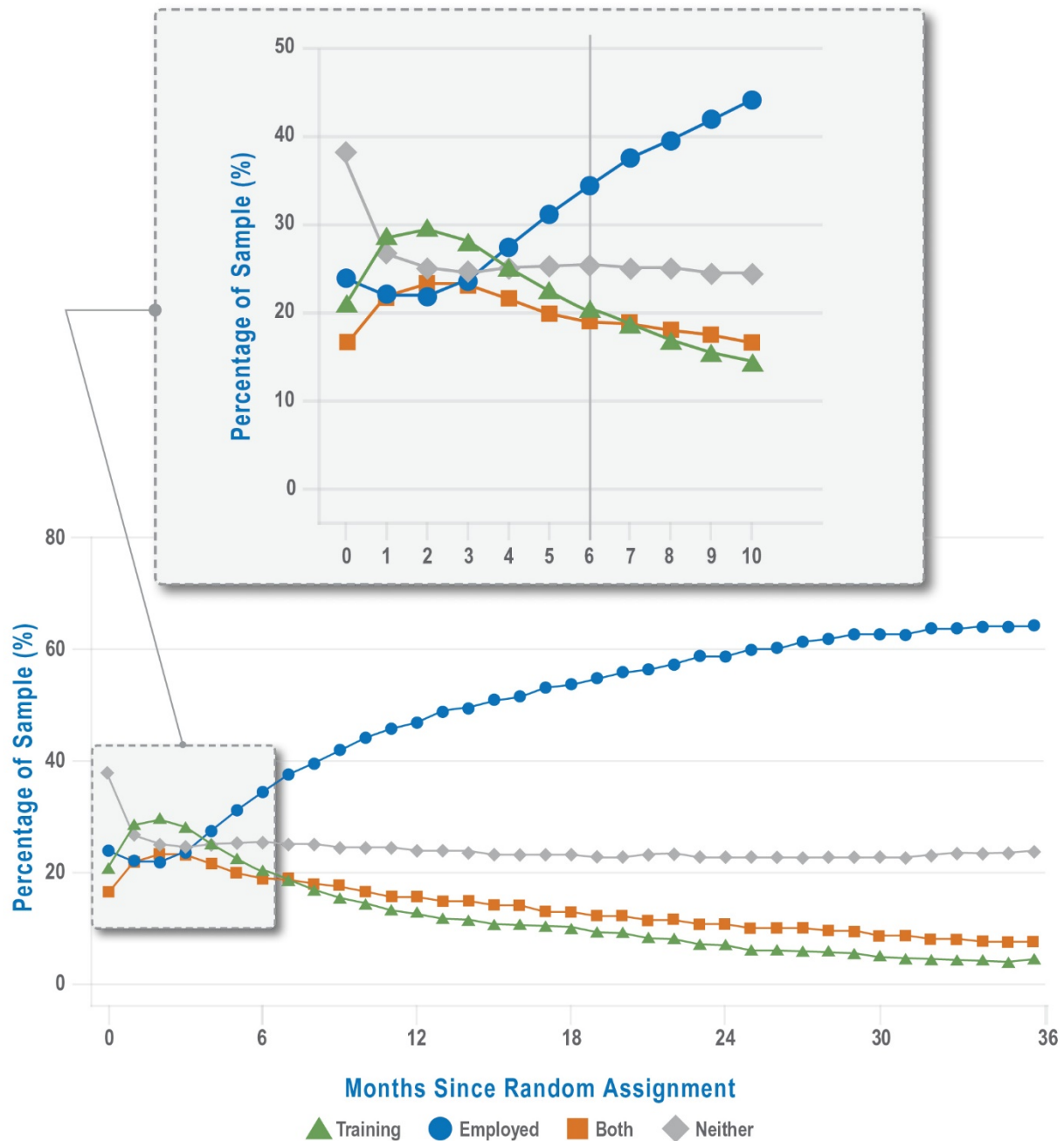
- **Treatment group members participated in training mostly in the early months after random assignment. Levels of *training* and *both* returned to their baseline levels six and ten months after random assignment, respectively.**

Corresponding to initial enrollment in HPOG, the proportion of the treatment group in either the *training* or *both* status increased in the first few months following random assignment. After the first three months, the share of respondents in *training* or *both* began to decline, with a commensurate increase in the share of respondents in *employed* status. After a sharp initial decline, the share in *neither* remained relatively stable.

In the next section we split the sample between those whose first training was not for Licensed and Vocational Nurses or registered nurses—which we refer to as *short-term* and those whose first training was for Licensed and Vocational Nurses or Registered Nurses—which we refer to as *long-term*. Werner et al. (2018) report that Licensed and Vocational Nurses or Registered Nurses are the only trainings with average duration among completers greater than 12 months. Within these two groups we assess the characteristics of employment three years after random assignment.

³⁷ The numbers reported in this chapter vary from data collected at the time of random assignment. According to the PRS and study's baseline survey, at random assignment, 43 percent of the sample reported being currently employed and 26 percent currently enrolled in school (see Chapter 1). The numbers here may vary for a variety of reasons, including: differences in the reference period (here we measure activities over a full month, rather than at the point of random assignment; differences in the sample (here we examine only treatment group survey respondents); recall bias; or some combination of these factors.

Exhibit 8.1: Training and Employment Status of Treatment Group Survey Respondents Over 36 Months



Notes: Each point represents the fraction of the treatment group survey respondents in the particular status (*training, employed, both, neither*) at each month after random assignment.

Source: Three-year survey.

8.2 Patterns for Short-Term and Long-Term Training

This section examines the portion of the treatment group that both enrolled in training according to the PRS and reported on the three-year survey that they participated in training.³⁸ We use these sources to relate program-reported information on the first training after random assignment with self-reported information on employment three years after random assignment.

- **Only about 16 percent of treatment group survey respondents first enrolled in long-term training.**

Based on administrative records, 84 percent of the sample first enrolled in short-term training. The largest share of first training after random assignment was short-term training for Nursing Aides, Orderlies, and Attendants (Exhibit 8.2). About 8 percent first enrolled in RN training, and about 9 percent first enrolled in LVN training. The average training duration for the long-term trainings exceeded 12 months, while the average training duration for the short-term trainings was approximately 4 months (not shown).³⁹

Although one might have expected lower completion rates for longer-term trainings, we find that completion rates are higher for that group. About 81 percent of those who first enrolled in long-term training reported any training completion compared to 69 percent of those who first enrolled in short-term training (not shown). This observation highlights an important point about selection: the groups of treatment group participants that take up short-term versus long-term training likely have quite different characteristics.

In addition to examining trainings for the overall sample, we also compare the distribution of training programs for the subgroups defined by baseline enrollment in training and education level. Based on a hypothesis of substantial subgroup variation, we undertook this descriptive analysis to try to understand what might underlie the program's overall lack of earnings impacts.

- **Those who were already enrolled or had some postsecondary experience at baseline were more likely to enroll in long-term training.**

Exhibits 8.3 and 8.4 report on training type for enrollment and education subgroups. Those who could be considered less prepared for HPOG were much more likely to enroll in short-term training—more than half of those who were not enrolled in school at baseline or entered with a high school education or less at baseline pursued training for Nursing Aides, Orderlies, and Attendants. On the other hand, a much larger share of those already enrolled in training or with some postsecondary education at baseline pursued long-term training. Less than 10 percent of those not enrolled at baseline and those with a high school education or less chose to enroll in long-term training.

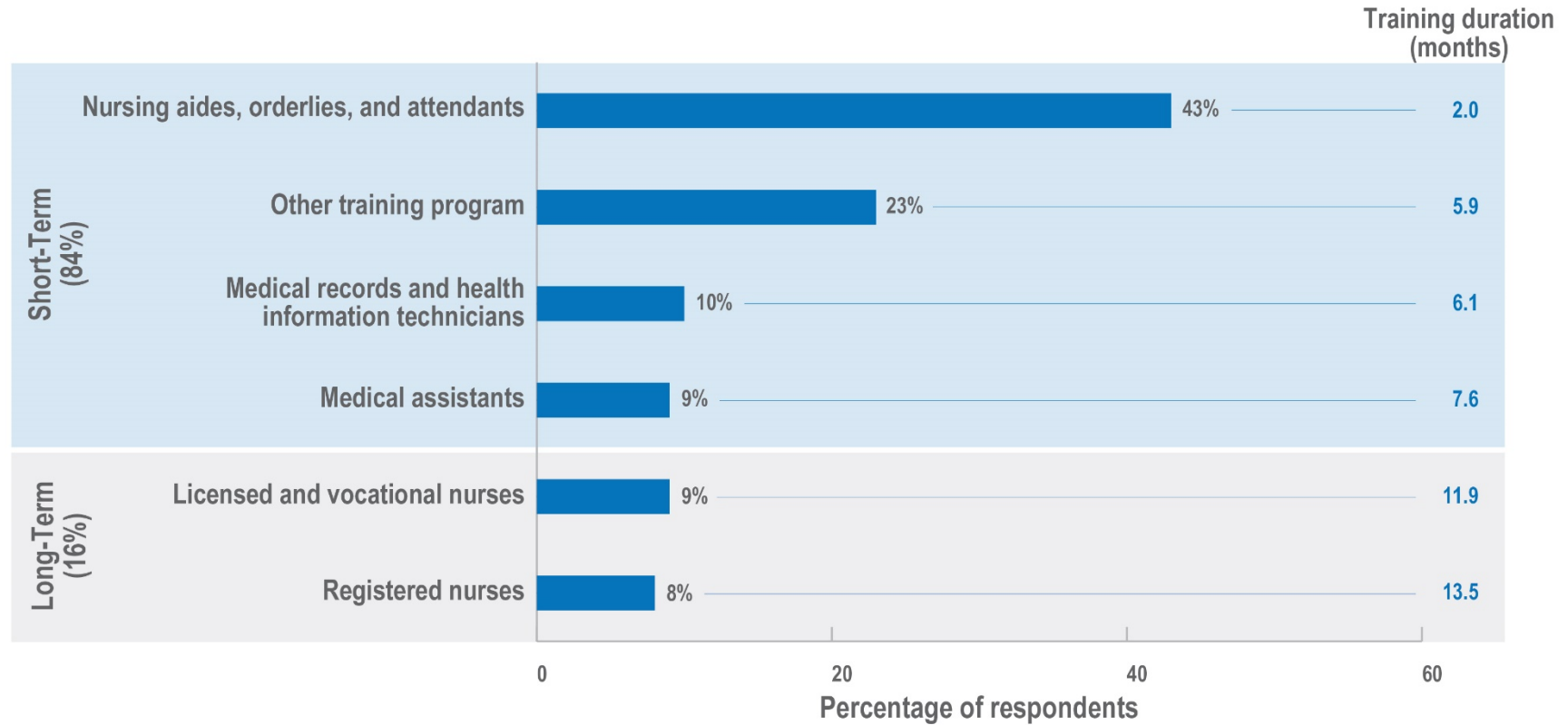
³⁸ Of the 6,027 treatment group members who completed the survey and did not skip out of any sections, 4,855 started a training according to the PRS and 4,124 of those started a training according to the three-year survey. Our analysis in the remainder of this chapter focuses on these 4,124 respondents.

³⁹ Chapter 3 reported that average duration for the treatment group was 7.6 months. The analysis in this chapter uses a different treatment sample and only focuses on the duration of first training entered into the PRS. The average duration of first training for this subset of the treatment group is 5.5 months. The earlier finding could also have included non-HPOG trainings.

The discussion to this point has focused on the characteristics of the first HPOG training. Now we shift focus to the characteristics of employment as measured by the three-year survey.

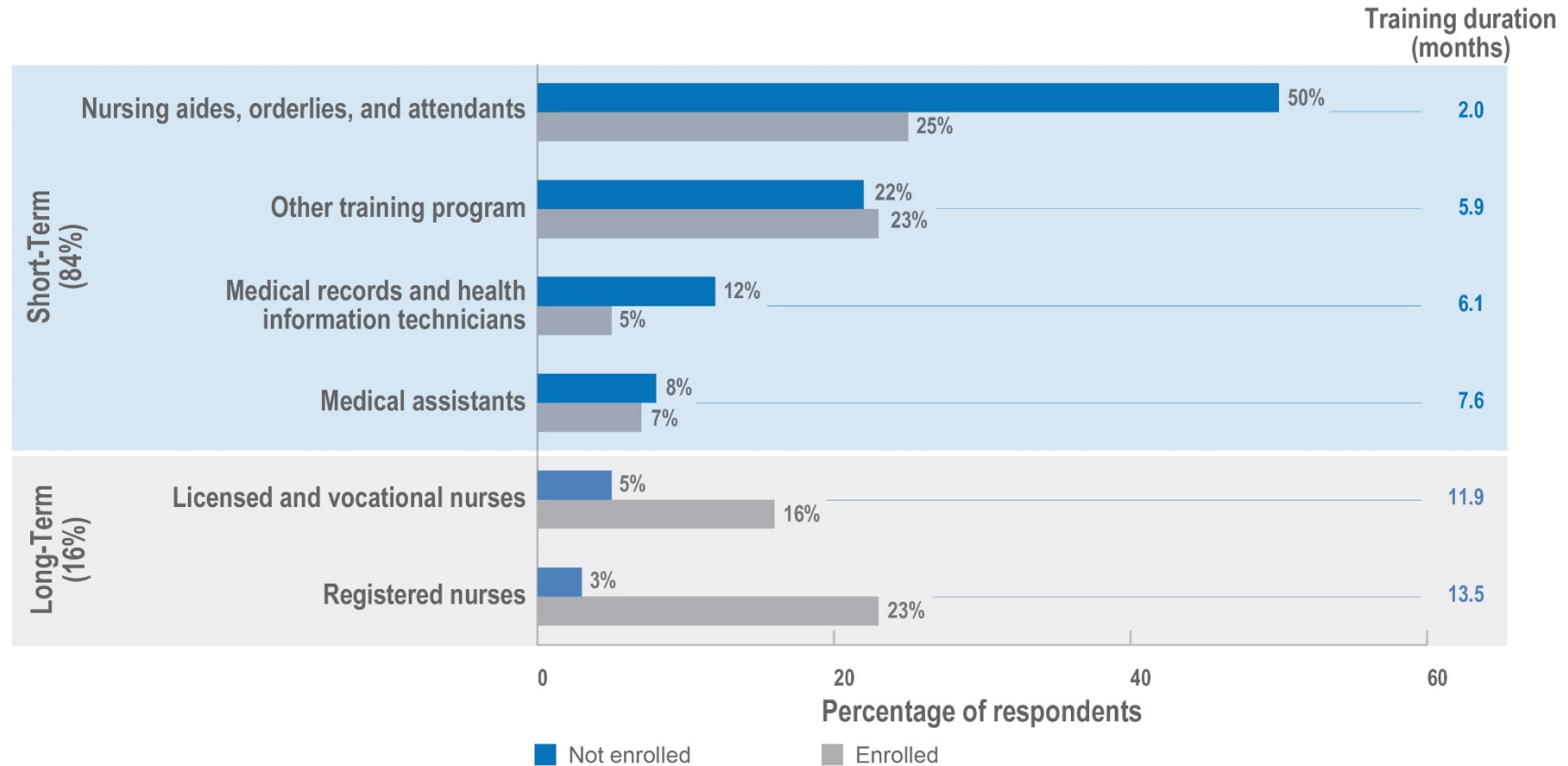
- **Three years after random assignment, labor market outcomes were more favorable for those who had enrolled in long-term training than for those who had enrolled in short-term training.**

Three years after random assignment, 89 percent of those who enrolled in long-term training were employed, earning an average of \$21 per hour; and 75 percent of those who enrolled in short-term training were employed, earning an average of \$14.50 per hour. Although this analysis does not draw on causal impact estimates, these analyses show that the employment occupation was strongly correlated with whether training was short-term or long-term. Those who took up short- versus long-term trainings are groups with distinct characteristics. Exhibit 8.5 shows that more than two thirds of those who enrolled in long-term training and reported employment in the three-year survey were working as either Registered Nurses or Licensed Practical and Licensed Vocational Nurses.

Exhibit 8.2: First HPOG Training by Type and Average Duration

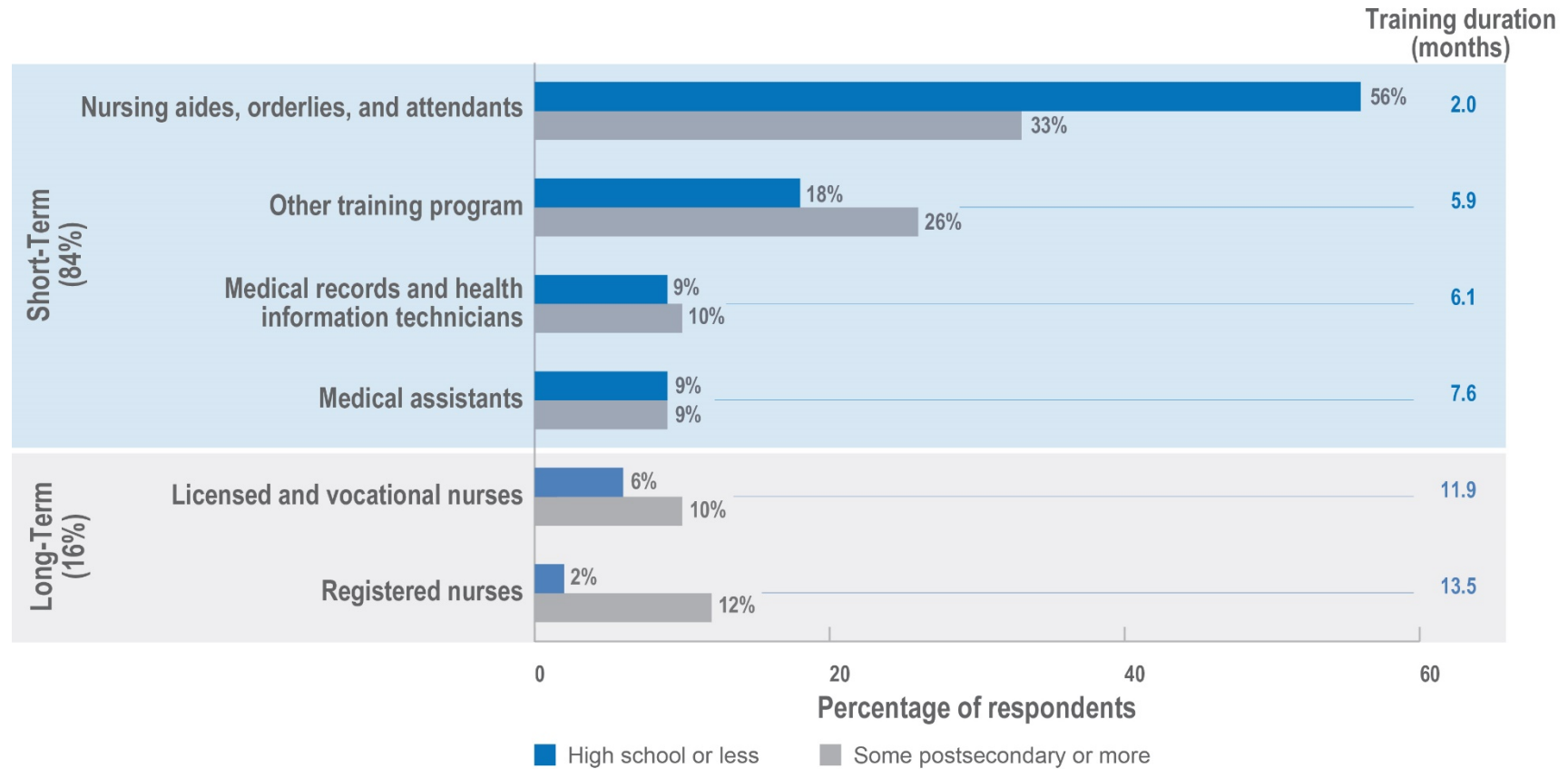
Notes: Sample includes 4,124 treatment group members with reported training in both the HPOG Performance Reporting System (PRS) and the three-year survey. Occupation is based on the first occupational training program reported in the PRS. Training duration is based on the PRS where available; for trainings that extended beyond the range of PRS coverage, training duration is from the follow-up survey. Training duration is the average among completers only. Percentages may not sum to 100 due to rounding.

Sources: PRS and three-year survey.

Exhibit 8.3: First HPOG Training by Type and Average Duration for Baseline Enrollment Subgroups

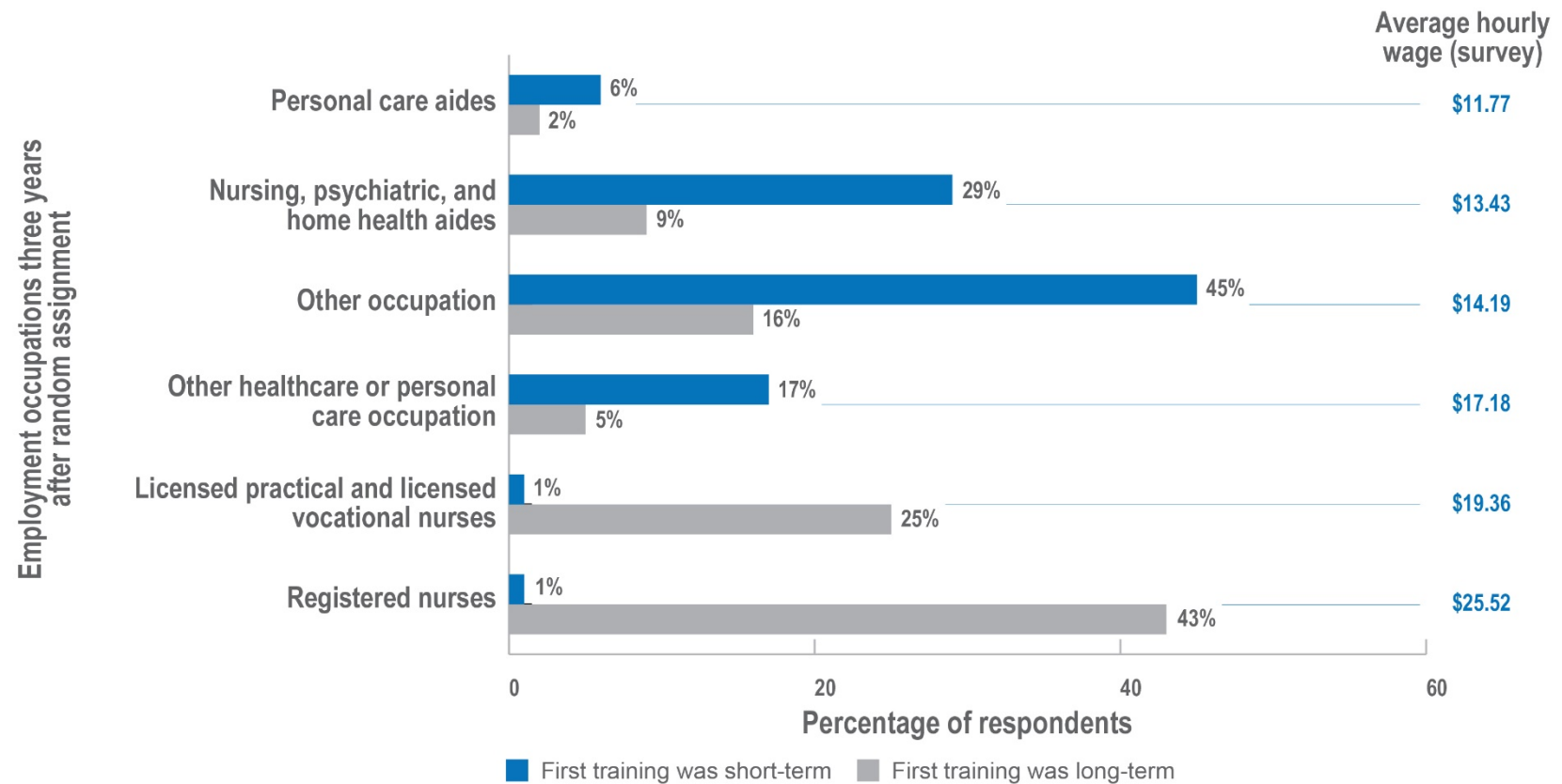
Notes: Sample includes 4,124 treatment group members with reported training in both the HPOG Performance Reporting System (PRS) and the three-year survey. Occupation is based on the first occupational training program reported in the PRS. Training duration is based on the PRS where available; for trainings that extended beyond the range of PRS coverage, training duration is from the follow-up survey. Training duration is the average among completers only. Percentages may not sum to 100 due to rounding.

Sources: PRS and three-year survey.

Exhibit 8.4: First HPOG Training by Type and Average Duration for Baseline Education Subgroups

Notes: Sample includes 4,124 treatment group members with reported training in both the HPOG Performance Reporting System (PRS) and the three-year survey. Occupation is based on the first occupational training program reported in the PRS. Training duration is based on the PRS where available; for trainings that extended beyond the range of PRS coverage, training duration is from the follow-up survey. Training duration is the average among completers only. Percentages may not sum to 100 due to rounding.

Sources: PRS and three-year survey.

Exhibit 8.5: HPOG Employment Occupation by Training Duration

Notes: Sample includes 3,867 treatment group members with reported training in both the HPOG Performance Reporting System (PRS) and the three-year survey, and who reported any employment in the three-year survey. Employment occupation is the current or most recent occupation reported in the three-year survey, as coded by the U.S. Census Bureau National Processing Center. Hourly wage was the last hourly wage reported in the three-year survey. Other occupation includes both healthcare and non-healthcare occupations. Training program length ("Short-Term" and "Long-Term") refers to the first training reported in the PRS. Percentages may not sum to 100 due to rounding.

Sources: PRS and three-year survey.

8.3 Returning to Training

As noted in the introduction to this chapter, the HPOG 1.0 FOA encouraged grantees to support career pathways or career ladders. This is based on the theory that by combining training and employment experiences people can build careers and improve their labor market outcomes. This feature of the career pathways framework is key for those who start at the bottom of the ladder and need to combine training and work experiences to climb up that ladder into higher-wage employment in the healthcare sector.

Under the career pathways framework, it is not necessary for a first training to meet a high-wage standard. Instead, in the career pathways framework, that first short-term training might be followed by some employment and then starting another short-term training or a longer-term training as a means of advancing in a career.

This section adds to the evidence on patterns of training and employment by exploring the patterns of self-reported transitions from the three-year survey with a particular focus on *returning for a second training* following an initial spell of training-to-employment.⁴⁰ Such a pattern would provide evidence that—at least within three years—some people's experiences reflect the career pathways framework. Furthermore, given the low wages of healthcare jobs resulting from short-term training, observing such a pattern is crucial for HPOG to result in high-wage healthcare employment.

The analyses in this section are based on data from the three-year survey. Relative to the PRS, the three-year survey has two advantages. First, the survey provides a longer follow-up period than the PRS.⁴¹ Second, it captures training outside of HPOG. A limitation of the survey is that it does not capture details of multiple trainings within a particular “spell” of training. As such, if individuals enroll in multiple trainings back-to-back (e.g., completing CNA training along with an additional short-term training to be eligible for a CNA-plus license), then the survey would record only one spell of training. We cannot determine the number of trainings completed or credentials earned at the spell level. Similarly, we can only determine whether the training spell ended with a completion of training or not, which may not reflect the completion status of other trainings within the training spell.

⁴⁰ Using HPOG administrative data, prior published work considered the extent to which HPOG participants pursue and complete multiple trainings. For instance, 18 months after random assignment, 16 percent of HPOG participants who had completed one course enrolled in another, and most of this follow-on training was in short-term courses following an initial short-term course (Werner et al. 2018). Loprest and Sick (2018) note that about one quarter of participants who completed CNA training completed additional short-term training to obtain a CNA-plus license.

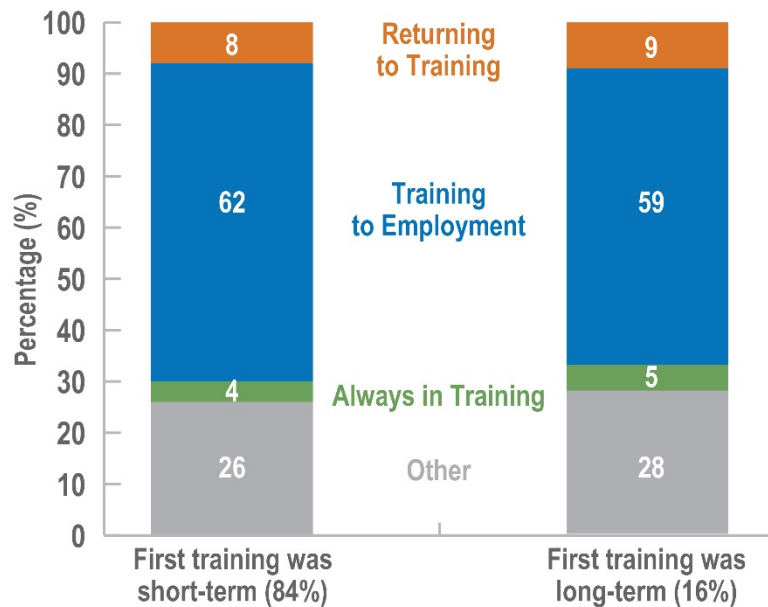
⁴¹ PRS data are generally available through June 2016. Data collection was originally scheduled to end on September 30, 2015; however, many grantees received no-cost extensions from ACF and continued entering participant data into the PRS through June 2016. The length of PRS follow-up ranges from 52 months for the earliest enrollees (those randomized in February 2012) to 18 months for the last enrollees (those randomized in December 2014).

Our analyses classify patterns of training and employment in four mutually exclusive transition types:

- **Returning to Training (RtT)** refers to patterns that contain a completed spell of training, followed by a spell of employment, followed by another spell of training.⁴² This *training-employment-training* pattern mirrors the concept underpinning the career pathways framework: that returning to training after having worked holds promise for longer-term career progress.
- **Training to Employment (TtE)** refers to patterns that contain a spell of training (whether completed or not) followed by a spell of employment, but no subsequent move back to training. This *training-employment* pattern is emblematic of standard job training and does not yet reflect the aspect of the career pathways framework that encourages engaging trainees in stackable credentials, particularly for those at lower rungs of the career ladder (although over a longer follow-up period, we might eventually observe a second training spell).
- **Always in Training (AiT)** refers to patterns where all spells are either *training* or *both*, indicating the participant was in training for all months.
- **Other (Oth)** refers to any other types of patterns in the data. These patterns include respondents who never move from their first non-training status, those who do not pursue training, and those who do not find employment after their training.

Exhibit 8.6 categorizes the hundreds of patterns collected in the survey data into these four transition types. The left portion of the exhibit shows the share of patterns in each transition type for HPOG treatment group respondents who first enrolled in short-term training; the right portion does so for the subset who first enrolled in long-term training.

⁴² In creating these patterns, we counted respondents who are in *both* status as in either training or employment, as appropriate, to complete the pattern. For instance, *both-employed-both* would be considered RtT (with *both* taking the place of *training*). But *training-both-training* would be considered AiT. See Appendix H for the full list of patterns.

Exhibit 8.6: Patterns of Training and Employment

Notes: Sample includes 4,124 survey respondents in the treatment group who enrolled in training according to the PRS and the survey. Percentages may not sum to 100 due to rounding. See Appendix H for a full listing of the patterns that make up each of the four categories. Source: Three-year survey.

- **Less than 10 percent of treatment group respondents return to training for a second spell after employment, whether their first training was short-term or long-term.**

Over the three-year follow-up, about two thirds of the treatment group respondents had a pattern that included a move from training to employment, regardless of whether they first enrolled in short-term or long-term training. About 5 percent of the group was in training the entire time.

Across both groups, less than 10 percent of respondents returned for a second spell of training. This finding reflects returning for *any* additional training, which is an upper bound for training that we might expect to have a stronger influence on earnings—long-term training. The share of respondents who experienced *TtE* or *RtT* differs only slightly between those who enrolled in short-term versus long-term training.

8.4 Summary

The patterns summarized in this chapter describe the experiences of the HPOG treatment group through about 36 months after randomization. Our analyses focused on understanding how these experiences differed for those enrolled in short-term versus long-term training and to what extent these experiences align with the career progression and career ladders defined in the HPOG 1.0 FOA (HHS/ACF/OFA 2010). That framework expects trainees to combine training resulting in credentials with employment—and thereby to craft a career. Because we focus only on the treatment group, the evidence we examine does not permit us to draw conclusions about the *impact* of HPOG on the prevalence of particular patterns.

A large portion of the sample completed only short-term training (see Exhibits 8.1 and 8.2). As would be common in other, similar samples of individuals coming to training programs, during the three-year follow-up for the HPOG treatment group respondents, we observe an increase over time in employment; a decrease over time in being in training or being both employed and in training; and roughly no change over time in experiencing neither training nor employment.

At the individual participant level, this non-experimental analysis found that employment outcomes three years after random assignment were more favorable for those who first enrolled in long-term as opposed to short-term training. The long-term training group consisted of mostly those who were enrolled in training at baseline or entered with some postsecondary education or more. This is consistent with the subgroup findings reported in Chapter 6. Over the longer term, this seeming bifurcation within the HPOG sample might result in different trajectories for the two subgroups that will warrant follow-up.

We also assessed the extent to which HPOG participants returned from post-training employment to a second spell of training. This adds to prior literature on the extent to which HPOG participants pursued more than one training (Loprest and Sick 2018; Werner et al. 2018). Although many HPOG participants transitioned from *training* to *employed* status at some point over the three-year follow-up, less than 10 percent of them moved from post-training employment to a second spell of training. This suggests that—at least within the three-year follow-up window—treatment group members are not following the career ladder path described by the FOA. Surprisingly, we find a similarly small fraction of the sample returning for a second spell of training regardless of whether they enrolled in short-term or long-term trainings. Those who completed short-term training have had more time during the follow-up period to pursue employment and return for follow-on training than those who completed long-term training (8 more months on average), but there is no evidence of returning to training at different rates. This finding could be driven by a multitude of factors. As noted above, those who took up short- versus long-term trainings have distinct characteristics, and the amount of time is only one factor in the decision to pursue additional follow-on training.

These findings have implications for assessing the performance of the HPOG logic model and the career pathways framework. One perspective is that despite the FOA guidance, HPOG 1.0 grantees did not urge participants to return for additional training (Werner et al. 2018), nor did the large share of participants return for additional training, at least within the three-year follow-up window. This may be related to how HPOG 1.0 programs were designed, in accordance with grantee performance measures. HPOG 1.0 grantees received “credit” toward their performance measures for serving a single person, no matter how many trainings he or she took. This may have incentivized grantees to offer more short-term training opportunities with fewer follow-on trainings.⁴³ Another possibility is that returning to school is too difficult for this population (even if the incentives were structured appropriately). A third (not mutually exclusive) possibility is that three years is not long enough for people to engage in a second training. We plan to return to this issue and reassess these patterns at the planned six-year follow-up.

⁴³ HPOG 2.0 revised the incentives to place greater emphasis on follow-on training by allowing grantees to receive “credit” for each training completed.

9. Discussion & Conclusion

The HPOG 1.0 Impact Study uses an experimental evaluation design to provide strong evidence of the impacts of 42 local programs operated by 23 HPOG 1.0 grantees nationwide. These impacts assess the effectiveness of HPOG in pursuing its dual goals of providing training opportunities for low-income individuals and TANF recipients and of providing a skilled workforce to meet the needs of the healthcare sector. The large study sample means the study can detect relatively small impacts, if they exist. It also permits analysis of impacts on a variety of subgroups, as identified at baseline.

This concluding chapter begins by summarizing the HPOG 1.0 impacts to date. It then discusses potential explanations for the impact findings as well as implications for future research, policy, and practice.

9.1 HPOG 1.0 Impact Findings to Date

This section summarizes HPOG's impacts to date across the main outcome domains at the short-term and three-year follow-ups. The comparisons between the short-term and three-year impact results discussed here are purely qualitative; we have not conducted tests of whether the two set of values being compared are statistically different from each other. As a result, the differences between two values being compared may or may not represent statistically significant differences in impact. We discuss these results for the sample overall and for major subgroups of interest, summarizing them in Exhibit 9.1.

9.1.1 Confirmatory Outcomes

Educational Progress

As of the short-term follow-up (about 15-18 months after random assignment), the HPOG 1.0 Impact Study reported that the treatment group's educational progress, defined at that point as *having completed or still being enrolled in training*, had increased 7 percentage points, relative to what would have occurred in the absence of the HPOG Program. As of the three-year follow-up, this impact was 13 percentage points, on the narrower educational progress measure of *training completion*.⁴⁴ The study's *Short-Term Analysis Plan* (Harvill, Moulton, and Peck 2015) and *Three-Year Analysis Plan* (Litwok et al. 2018) pre-specified each of these educational progress outcomes as "confirmatory," meaning that, for each respective report, these outcomes are the main indicators of the extent to which the program is making progress toward its goals.

At the short-term follow-up, HPOG had larger impacts on educational progress for those who were receiving TANF or SNAP/WIC at baseline, relative to those who were not receiving any public assistance at baseline. As of the three-year follow-up, HPOG had a greater number of differential impacts on educational progress, with all of them favoring the subgroups who could be considered less prepared at baseline for a program such as HPOG, such as those who were not enrolled in training or had lower levels of education.

⁴⁴ For a direct comparison, the *Short-Term Impacts Report* included training completion as an exploratory outcome and reports a 9 percentage point impact on that measure (58 percent completion in the treatment group versus 49 percent completion in the control group).

Earnings

The evaluation team also pre-specified and registered *earnings* as a secondary outcome in the short-term and as a confirmatory outcome for the three-year follow-up study. The short-term report detected a small earnings impact in the fifth follow-up quarter. However, there was no detectable impact of HPOG on earnings in the 12th and 13th quarters after random assignment.

In the short-term, those with no barriers to school or work had larger earnings impacts, relative to those who had some barriers. At the three-year follow-up point, those who came into the program with some postsecondary education had larger earnings impacts, relative to those with less education. These two subgroup findings suggest that those who are seemingly better prepared to take advantage of HPOG's offerings (because of their baseline barriers or education) experience larger earnings impacts.

Exhibit 9.1: Summary of HPOG 1.0's Short-Term and Three-Year Impacts, Overall and by Subgroup

Outcome Domain:	Educational Progress ^a (ppt)		Quarterly Earnings (\$)		Employment (ppt)		Employment in Healthcare (ppt)		Job Quality (ppt)		Public Assistance (ppt)	
Analysis Timing:	Short	3-Year	Short	3-Year	Short	3-Year	Short	3-Year	Short	3-Year	Short	3-Year
Overall Impacts												
	↑7	↑13	↑\$137		↑1		↑11	↑12	↑2	↑2		
Subgroup Impacts												
Education: ≤HS vs. ≥postsecondary		←5		→\$303					→5 ^b			←4
Enrolled: Not enrolled vs. enrolled		←7					←5		←6		→3	→6
Employed: Not employed vs. employed		←6					←4		←5			
Barriers: Some barriers vs. none		←5	→\$251 ^c			→3						
Public Assistance: TANF vs. SNAP/WIC												←6
TANF vs. no assistance	←7								←11			
SNAP/WIC vs. no assistance	←4	←7							←8			
Dependent children: Children vs. no children		←3										

Notes: "ppt" refers to percentage point. Overall impact arrows indicate the direction of the impact. Subgroup impact arrows indicate which of the two subgroups (left vs. right) had the larger impact, by the amount indicated.

^a The short-term confirmatory measure of educational progress was training completion or ongoing enrollment, and the three-year confirmatory measure of educational progress is training completion.

^b The main subgroup analysis in the short-term report included four education-defined subgroups. Job quality impacts were 5 percentage points larger for those with some postsecondary versus a high school diploma and 6 points larger for those with a college degree versus those with a high school diploma.

^c The main subgroup analysis in the short-term report included three barriers-defined subgroups. The impact was \$425 larger for those with no barriers at baseline relative to those with two or more barriers.

9.1.2 Secondary and Exploratory Outcomes

Beyond these confirmatory outcomes, the evaluation also considered several secondary and exploratory outcomes. Here we discuss two: employment and receipt of public assistance.

Employment

At both the short-term and three-year follow-up points, employment rates were similar between the treatment and control groups. At the fifth follow-up quarter, about 70 percent of the study sample was employed. At the 12th-13th follow-up quarters, more than 80 percent were, with the HPOG group employed at a rate 1 percentage point greater than the control group.

HPOG's impacts on employment in healthcare were much larger, signifying a shift in the type of jobs the treatment group secured. As of the short-term follow-up, 53 percent of the treatment group, about 11 percentage points more than the control group, was employed in healthcare. By the three-year follow-up, about 56 percent of the treatment group was employed in healthcare, 12 percentage points more than in the control group.

Exhibit 9.1 also indicates employment impacts for subgroups. In the short-term, the impact for healthcare employment was larger for those who at baseline were not enrolled in training or not employed, relative to their peers who at baseline were enrolled in school or employed. In comparison, after three years, those with some barriers to school or work experienced larger total employment impacts relative to those with no barriers; we observe no differential subgroup impacts on healthcare employment at three years. These subgroup findings are not obviously consistent with one another or necessarily with prior expectations, and so we have interpreted them tentatively.

Public Assistance

In both the short-term and after three years, HPOG did not reduce public assistance use overall, although we do observe some differential impacts. In the short-term, those study participants who entered a local HPOG program already enrolled in school experienced a 3 percentage point larger increase in their public assistance use than did those not yet enrolled. After three years, in addition to those enrolled in school at baseline, those with less education at baseline as well as those receiving TANF at baseline (relative to SNAP/WIC) also experienced relatively larger increases in their public assistance use.

9.2 Discussion of Impact Findings

Local HPOG programs operated in a service rich environment with a highly motivated control group, which implies that the HPOG Program had to surpass a relatively high bar in order to generate impacts. In that context, HPOG generated improvements in educational progress, though these improvements did not result in earnings impacts after three years. On the one hand, these results might seem surprising, considering that the conventional logic model implies that training leads to higher earnings. On the other hand, these results might not seem surprising, given the heterogeneity within the sample—in terms of their experiences with training duration and in the labor market for the treatment group, and in terms of demographic and other characteristics for the sample overall.

We discuss these findings using four potential explanations for why educational progress gains have not yet and may or may not in the future result in earnings gains:

1. ***Training duration seems to matter.*** A large majority of the treatment group enrolled in short-term trainings. Three years after random assignment, those who had initially enrolled in short-term trainings had lower wages than those who had initially enrolled in longer-term trainings, according to descriptive analyses.

2. **Subgroups seem to matter.** Those who were seemingly *less prepared* at baseline for the longer-term trainings available in a program such as HPOG made relatively more educational progress than those who began training more prepared. However, those who were seemingly *more prepared* at baseline had larger labor market impacts.
3. **Implementation seems to matter.** The specific execution of HPOG 1.0 grants in practice—including the grant’s timing and performance metrics—may, at least in part, explain findings about training duration and the extent of follow-on trainings.
4. **More time is needed.** It could be the case that three years after randomization is not enough time for impacts on labor market outcomes to materialize.

We elaborate on each of these as possible, partial explanations for this report’s findings.

9.2.1 Training Duration Seems to Matter

The FOA encouraged local HPOG programs to “provide eligible individuals with the opportunity to obtain education and training for occupations in the healthcare field that pay well and are expected to either experience labor shortages or be in high demand” (HHS/ACF/OFA 2010, p. 1). As they implemented HPOG, grantees offered a wide variety of trainings—some of them leading to healthcare sector jobs with higher wages (e.g., Registered Nurse, Licensed Practical Nurse, Licensed Vocational Nurse) and some of them leading to entry-level healthcare sector jobs (e.g., Nursing Aides, Orderlies, Attendants) with lower wages (Chapter 8).⁴⁵ Although the *offerings* were expansive, the overwhelming share of participants *enrolled* in training for entry-level healthcare jobs.

As reported in Chapter 8, among those who enrolled in short-term training (about 84 percent of treatment group participants), 75 percent were employed at the three-year follow-up and they earned an average wage of \$14.50 per hour. In comparison, among those who enrolled in long-term trainings (about 16 percent of treatment group participants), 89 percent were employed at the three-year follow-up and they earned an average of \$21 per hour. This distribution—of sample, trainings, and associated jobs—likely contributes to the evaluation’s summary finding of no detectable earnings impacts despite meaningful educational progress impacts.

Because the analysis on which this explanation is based is descriptive, future analysis would be needed to tease out the implications of this heterogeneity, including identifying the impacts on wages for those who took up short-term versus long-term trainings.

9.2.2 Subgroups Seem to Matter

Our subgroup analyses show that training duration and subsequent wages are related to baseline characteristics. Educational progress gains surface in all subgroups—and in some cases are even greater for those who are seemingly less prepared for a program such as HPOG. However, the labor market gains accrue only to those who had traits at baseline commonly associated with labor market success, such as higher levels of education or fewer barriers to school or work. Reinforcing the training duration argument in the previous section, the seemingly better prepared group was more likely to engage in long-term training. The findings for the better prepared group are consistent

⁴⁵ In an analysis of supply and demand for Certified Nursing Assistant (CNA) jobs, Loprest and Sick (2018) note that CNA training is a good fit for relatively disadvantaged groups because the academic requirements are light and training is short. Although demand for CNAs is high, CNAs earn low wages.

with expectations for career pathways training—that participants’ educational progress results in well-paying jobs.

In comparison, the findings for the seemingly less prepared group imply that training completion—particularly for short-term trainings—may not be enough to translate to impacts on earnings for that group. Such individuals likely begin on the lowest rungs of the career ladder. Starting from that position, to complete the follow-on training needed for a well-paying healthcare job might be extremely challenging, given difficult prerequisites and other barriers to training such as its cost or family responsibilities (Loprest and Sick 2018).

9.2.3 Implementation Seems to Matter

Another explanation for the combination of findings pertains to the specifics of how HPOG 1.0 grantees executed the grants in practice. This was a five-year grant program, where awards were not expected to be renewed beyond five years. According to HPOG Program guidance, grantee performance was measured by counting individuals, not trainings completed. Furthermore, individuals in our sample only began enrolling in training midway through the grant period, leaving at most two and a half years during which the earliest enrollees could access the training that was HPOG grant-funded. If programs encouraged people to get work experience before coming back for more training (and some grantees did encourage that), then the time-limited nature of the grant would make gaining additional training difficult to accomplish. Certainly grantees did not want to have people in the middle of training when their funding ended, and the evaluation observed grantees urging participants toward shorter-term trainings especially toward the end of the grant period (e.g., Werner et al. 2018).

Together, these issues in the way that HPOG 1.0 operated might have created an incentive for short-term trainings and not necessarily for follow-on trainings. Given the guidance in the FOA—to generally “support career pathways” or “articulated career ladders” without an explicit requirement for long-term or follow-on trainings—this implementation might have been expected. These are issues that the HPOG 2.0 FOA addressed, being more explicit about HPOG 2.0 grantees’ offering longer-term and follow-on trainings (HHS/ACF/OFA 2015).

These implementation factors provide a possible explanation for the observations that a greater share of trainings completed were short term, and only a small share of participants participated in follow-on trainings. These observations subsequently provide a possible explanation for the impact results of meaningful educational progress that has not yet translated into earnings gains.

9.2.4 More Time Is Needed

Finally, perhaps it takes more than three years for educational progress to yield meaningfully higher earnings. Indeed, all of the trends discussed in the prior three sub-sections warrant examination at longer-term follow-up. Recent evidence from Project QUEST reveals mid-term (three-year) null results, with longer-term (beginning after four years) favorable impacts on earnings (Roder and Elliot 2019). Other evaluations find mixed evidence on labor market impacts in the mid-term (e.g., Fortson et al. 2017; Schwartz, Strawn, and Sarna 2018), where longer-term results are still forthcoming.

For HPOG 1.0, earnings impacts might arise in the longer term if a substantial share of the sample moves into better healthcare jobs, an expectation based on the assumption that healthcare sector jobs can be better paying than whatever jobs control group members would hold. This might happen

simply through the passage of time, or it might happen if a greater share of treatment group members return to participate in additional training. That additional training would not be in HPOG 1.0 programs (that funding has ended), but longer-term earnings gains are plausible if HPOG 1.0 programs have instilled in their participants that a life's career is built through returning to education and training as a means for advancement.⁴⁶

Without movement into better healthcare employment, either through promotion or via additional training, we would not expect impacts on longer-term earnings to change from those in this report. In fact, if the share of the treatment group that is in entry-level, lower-paying healthcare jobs remains relatively stable while more of their control group counterparts advance (whether in healthcare or non-healthcare jobs), then negative impacts on earnings might well emerge in the longer term.

9.3 Implications for Future Research, Policy, and Practice

This evaluation reveals that the collection of local HPOG programs in the HPOG 1.0 Impact Study improved educational progress outcomes for the entire study sample and had no detectable impact on earnings as of the three-year follow-up. Compared to other studies of job training programs, this evaluation has a very large sample; consequently, the failure to detect impacts on earnings is not due to a simple lack of statistical power.

The collection of HPOG 1.0 programs is quite diverse, with their commonality being the stream of funding that supported them. As such, the HPOG Impact Study can be thought of as an “effectiveness” evaluation, referring to its test of a program under “real-world” conditions. In comparison, most other evaluations of similar sector- and/or career pathways-based training programs are of programs that were selected as a high quality version of the program. As interventions being tested “under ideal and controlled circumstances,” these can be thought of as “efficacy” evaluations (e.g., Singal, Higgins, and Waljee 2014). We mention this effectiveness- efficacy distinction because it is relevant to interpreting the impacts from the two types of studies. Evaluations of selected programs (efficacy trials) are generally expected to detect greater impacts than would evaluations of large funding streams of programs operating under real-world conditions. The nature of the HPOG impact evaluation (as an effectiveness evaluation) leads to the conclusion that an entire funding stream—with all of the heterogeneity of programs included—improved the educational progress of its participants.

That said, that HPOG's impacts on educational progress did not translate into impacts on earnings after three years leaves open the question of whether the additional training afforded the treatment group will ever translate into significant earnings gains. The previous section considered some plausible explanations for this combination of findings. Whether earnings gains would materialize in the future seems dependent on whether those HPOG participants currently in low-paying healthcare sector jobs return to complete additional training at a rate higher than what the control group accomplishes in the same time period. Doing so might help them advance along a healthcare career ladder, where the higher rungs do indeed have higher pay.

The planned six-year follow-up will reveal which of these possibilities becomes reality for the HPOG sample. If the treatment group does not return to training and remains in the largely low-paying

⁴⁶ When the HPOG 1.0 grants ended, some programs continued via funding from other sources, including HPOG 2.0. HPOG 1.0 participants might have pursued additional training either at the same location where they received their HPOG 1.0 training, if it was still in operation, or from some other provider.

healthcare jobs they are in as of the three-year follow-up, then future earnings gains seem unlikely. It is possible that the increase in lower-rung training may provide participants an advantage in employment and earnings in a less robust economy. Evaluation results are never timeless or placeless, and so additional research may provide insights on how these programs function across varied iterations of them across time and place.

A report based on those long-term evaluation efforts is scheduled for release in 2021 and can follow up on the issues raised in this three-year analysis but with longer-term data. In addition to longer-term HPOG results, ACF is funding intermediate and longer term follow-up of all nine programs included in the PACE Study. Those results will be released on a rolling basis through 2021. Additionally, ACF has funded a comprehensive evaluation of the second round of HPOG grants (HPOG 2.0). That study also includes a cost-benefit analysis, which will have value in helping to understand—given the impacts observed—the extent to which the government investment is worthwhile. Together, this rich body of research will add substantially to the field's collective knowledge about the impacts of career pathways programs, including various implementations of them.

The analysis of the three-year findings offers some implications for policy and practice, as well. For example, because this analysis found

- that training durations were generally short (a large majority of the sample took up training in short-term programs, averaging four months to completion),
- a meaningful shift in healthcare employment that came with no increase in earnings, and
- very low rates of returning to training,

future HPOG and similar programs may want to

- emphasize and support longer-term training for mid- to higher-level jobs in healthcare, and
- encourage and support program graduates of short-term programs who are in low-paying jobs to take advantage of additional trainings, which may provide opportunities for them to move up the career ladder.

Indeed, the HPOG 2.0 FOA emphasized longer-term and follow-on trainings to a greater degree, implying that its evaluation will be poised to offer evidence on the effectiveness of that more fully articulated career pathways model.

Nevertheless, even in relatively service-rich environments and with a well-motivated and high achieving control group, HPOG increased training completion and provided financial assistance and support services that led to some better outcomes for the treatment group as a whole, as well as for some major subgroups. Although a lesser share of the HPOG treatment group reports experiencing material hardship, and a greater share are in healthcare sector employment (which has the *potential* to improve their earnings), these impacts have not translated into meaningful labor market gains on average as of the three-year follow-up. Because a primary motivation for individuals getting job training—and for government programs supporting job training—is that more training leads to higher earnings, earnings impacts will be an important marker of success to observe over time.

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